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Unifying Perplexing Gages

A BUGBEAR of makers and buyers of rubber-covered and other insulated wire, and rivaled only by the world's curious coinage systems, has been the number and complexity of the industry's gages. It mattered not how illogical and empirical the gages were, how much they fettered trade, how ill-adapted they were to scientific requirements, or how much they puzzled purchasers, wire-making groups have been as loath to relinquish them as though they were sacred essentials. But modern industrialism chafes at handicaps, no matter how time-honored, and it has little patience with a lot of arbitrary standards that can be balanced only with complicated computations. It now insists upon the scrapping of practically all of the thirty wire and sheet metal gage systems in use in the country as absolutely necessary if substantial headway is to be made in the nation-wide campaign for simplification and standardization.

Leading manufacturers, aided by the American Engineering Standards Committee, are planning to substitute for the conflicting gages a standard series of nominal sizes and tolerances (decimals of an inch being now favored) for wires, sheets, plates, strips, and tubing walls. Incidentally, some may see in this a trend toward the adoption in American manufacturing practice of a modified metric system. True, if the basis of the new system of measurement were to be the inch instead of the meter, with each unit in the subdivision ten times that of the unit next smaller, it would be closely akin to and possess many of the advantages claimed for the metric method. Perhaps such a system might even appeal to those British manufacturers, who, while realizing the shortcomings of the obsolescent gages and willing to improve upon them, are not yet prepared to replace them with metric measures.

British Need American Equipment

SINCE the subsidence of the big strike in Great Britain, and in the quick ending of which Americans were much gratified, British statesmen have been making a very serious survey of the whole industrial situation with a view not merely toward averting a recurrence of the partial paralysis of trade but toward remedying the nation's inability to provide ample and steady employment and to sell its products as cheaply as foreign made goods on its own soil. While labor has been restive, apparently indifferent to the problems of employers, and too prone to depend on governmental support, employers, on the other hand, have seemingly made the mistake of relying too much on colonial obligations, fine trade connections, extensive shipping, and easy overseas financing. All were potent advantages in the past, but they fail to provide adequate defense now against aggressive competitors who have increased production while lowering costs.

With some notable exceptions, British manufacturing methods and equipment are not up to date, and wasteful management is too common. The idea of having to rebuild factories, reorganize staffs, and to junk serviceable machinery may jar the ultra-conservatives, but their own investigators see no other way out. Mass production on much greater scale and at reduced unit cost may not only soon renew British commercial prestige, but also allow better wages with more work, which should make labor more contented and ambitious. Herein would appear an

opportunity also for American makers of rubber and other machinery to render a service mutually advantageous; and it is fair to assume that in rehabilitating their industries the British would welcome aid from none more gladly than from their Yankee cousins.

Synthetic Butanol—Not Yet

COMMERCIAL success has not yet attended the synthetic production of normal butyl alcohol (butanol), states P. G. Mumford, president of the Commercial Solvents Corporation, correcting a widespread report that butanol can be made synthetically in competition with the fermentation product. Other chemical authorities state that only in laboratory experiments has butanol been even approximated, and then mostly through the more expensive use of acetylene gas and also ethyl alcohol.

According to the Bureau of Standards, butanol is extensively produced from starch in connection with acetone by the Weissman-Fernbach process. A special ferment, the Bureau explains, converts the starch from corn into a substance that is chiefly butanol (one part) and acetone (two parts). By the Boinot process (1925 U. S. Patent No. 1,565,543) it is claimed that "by adding a lactate to a carbohydrate mash undergoing butyl-acetone fermentation the ratio of butyl alcohol to acetone in the resulting mash is increased."

Acetone, valued by rubber chemists as a resin and sulphur solvent, was formerly derived almost wholly from acetate of lime, a product obtained in the destructive distillation of wood. Butyl alcohol also interests rubber chemists as a source of butadiene in the manufacture of synthetic rubber, and as a vulcanizing accelerator when containing dissolved sodium or potassium. It is extensively used as a solvent in the pyralin and allied industries.

Reciprocal Benefits of Safety First

PENNSYLVANIA employers have since the passage of the Workmen's Compensation Act paid out $16,019,121 in claims for injuries due to industrial accidents. Offsetting this discouraging showing of human suffering and economic loss comes the assurance from the National Safety Council that the pro rata of accidents is steadily declining, the reduction in one industry alone (cement) amounting to 45.2 per cent within five years. This result, it is said, was accomplished through continually protecting machinery and showing workers how most casualties are due to ignorance or recklessness, the safety first campaign redounding much to the advantage of all concerned.

Rubber manufacturing concerns can show, too, that they have made considerable progress in this direction. Candor compels the admission that some old-time rubber mills were anything but sanitariums, and comparison of them with most modern rubber mills from the standpoint of betterments, especially in minimized hazards and more comfortable and hygienic conditions, affords striking proof that the captains of the rubber industry have kept well in the forefront in practical welfare work. Although begun in an altruistic spirit, they have found that such endeavor, like mercy which blesses him who gives and him who receives, has actually paid large dividends through saving of time, labor, and accident compensation.

THE COMMON VIEW OF BUYING FOR FUTURE DELIVERY IS that shrewd manufacturers take advantage of the necessities of planters, drive a hard and fast bargain thus putting something over on the producer and their own competitors as well. The facts are, however, that the manufacturer must be assured of crude supplies at a known price to market his own goods profitably. The planter also must see his way clear months ahead to keep his own business going. Hence the large planters invite forward purchasers for the whole or a large part of their output when prices are low, as an insurance measure. The manufacturers meet his terms for the same reason. It is good business for both and has a definite, stabilizing effect upon the market.

AN AMERICAN OCEANOGRAPHER ADVISES HIS COUNTRYmen not to worry about acquiring tropical lands for raising raw material, as a vast territory contiguous to the Hawaiian Islands steadily rising from the Pacific will soon afford enough land for growing not only all the rubber the United States will ever need, but many other great crops as well. Just a little patience is needed. But the chances are that long before old Neptune rewards the waiting rubber goods makers they will be buying Malayan crude or choice synthetic at practically their own price, with the supply abundant.

PERSONALLY-CONDUCTED TRIPS THROUGH RUBBER FACtories can be devised so as to make an excellent impression on buyers. A discreet, intelligent, and perhaps convalescent employe acting as a guide for small groups could give object lessons that might be more effective than a torrent of sales talk elsewhere; and it should be easy to arrange the sight-seeing so that it would be neither inconvenient nor distracting, even in comparatively small shops.

THE OLD BUGABOO OF INADEQUATE PACKING METHODS has long since disappeared due in part at least to the results of a wide-spread successful campaign inaugurated by the Department of Commerce in collaboration with the American Railway Association, the Rubber Association of America and various shippers' organizations, freight forwarders, insurance groups, etc. With these efforts on the part of American manufacturers and exporters to modernize the standards of American export technique and with the enormous accumulation of new advantages in their favor through improved American ship service, cable and banking connections, we may face the future of our export program with equanimity and confidence.

A Glossary of Words and Terms Used in the Rubber Industry—XX[1]

Insulation—Wires—Cables—Tapes—Compounds

Cable—Continued

Elevator Annunciator Cable. A stranded group of from 5 to 24 conductors used in connecting the annunciator in an elevator car with the signal push buttons on various floors, and embodying much strength and flexibility, each core usually composed of 16 strands of 30 A. W. G. wire, insulation being two wrappings of cotton wound reversely and one cotton braid. Conductors are cabled about a core of jute and have an overall cover of two cotton braids. Cable may be either dry or saturated.

Elevator Central Cable. An elevator control cable. See Elevator Control Cable.

Elevator Control Cable. A multiple conductor used in connecting an elevator controller with the stationary equipment, and pendant in the shaft from the floor of the elevator cage; composed of from four to twelve No. 16 A. W. G. untinned stranded conductors each made up of twenty-six 30 A. W. G. wires, cotton wrap, vulcanized rubber insulation, dry or saturated braid, sometimes muslin taped, twisted grouping, with or without dry jute filler, two or three layers of weatherproofed braid. On long lengths two stranded steel cables cushioned with cotton and laid alongside or in the center of the cable are used to support the latter. Similar to elevator lighting cable but usually having more conductors. See Elevator Lighting Cable.

Elevator Lighting Cable. A duplex conductor used for connecting lighting circuits in elevators to the stationary source of current, and usually suspended in the shaft from the floor of the elevator cage; usually composed of No. 14 A. W. G. conductors made up of forty-one stranded No. 30 A. W. G. wires, separator of soft cotton, vulcanized rubber insulation, one saturated braid, twisted grouping, with or without dry jute filling, and overall coverings of two or three weatherproof braids. On long lengths two stranded steel cables cushioned with cotton and laid alongside the cable are used to support the latter.

Emergency Cable. A cable of light construction put in the circuit of an aerial line temporarily to afford service until permanent repair is made.

Ferranti Cable, Main. A multiple concentric conductor designed by S. Z. de Ferranti for conveying high tension currents and composed of two or more concentric copper tubes insulated from one another with paper saturated with black ozocerite or mineral wax.

Fire Alarm Cable. A multi-conductor cable for connecting alarm boxes on streets with a fire department general station; sizes various, solid or stranded cores, rubber insulation, covering of rubber-filled tape, wormed grouping, dry jute fillers, rubber-filled tape overall covering, and lead sheathing.

Flameproof Cable. A cabled conductor with a braided overall covering impregnated with flameproof paint or fireproof compound. See Slow-burning Wire.

Gyroscope Compass Cable. See Compass Armored Cable.

Hard Usage Cable. A single or multiple cabled conductor having an outer covering of heavy seine twine braid, weatherproofed, or an armor of metallic braid; designed for roughest mine and factory use.

High Frequency Cable. See Litzendraht wire, High Frequency Wire, Radio.

Iron Covered Cable. An underground or a submersible cable with an armor of iron (steel) tape; a park cable. See Armored Cable, Park Cable.

Lead-Covered Cable. A heavy wire or group of such conductors having their insulation protected from mechanical injury with a sheathing of lead. See Lead-Covered Wire, Lead-Encased Wire.

Lighting Cable. A cable designed primarily for conducting current for lighting, although often used also for power, and including the following types:

Aerial Lighting Cable (Standard Type). A light and power distributing cable having a No. 6 A. W. G. solid copper conductor insulated with three braids impregnated with weatherproof compound.

Arc Light Suspension Cable. An aerial conductor connecting a line wire with an electric arc street lamp; core of forty-nine strands equaling No. 6 A. W. G. wire; insulation vulcanized rubber with three weatherproof saturated braids. See Mast Arm Cable.

B-X Cable. Trade term for a relatively small lighting and power cable consisting of a flat-laid pair of conductors, insulated with rubber, covered with saturated braid, and with an overall of saturated braid, encased in two coils of flattened armor wire, the outer one covering the spaces between the turns of the inner one. A duplex conductor in which a flexible metal duct is an integral part.

Code House Cable. A lighting cable of several types for house wiring and conforming to the National Electrical Code (which see). Single conductor cores 8 to 14 A. W. G., stranded, rubber insulated, one or two saturated braids, or rubber-filled taping and one saturated braid; two conductor cores 500,000 c.m. to 14 A. W. G., stranded, rubber insulation, saturated braid on 8 to 14 and rubber-filled tape on 6 and larger sizes, twisted grouping, dry jute fillers, overall of rubber-filled tape and saturated braid; twin flat cores 500,000 c.m. to 14 A. W. G., stranded rubber insulation, saturated braid on 8 to 14, and rubber-filled tape on 6 and larger sizes, parallel grouping, overall of saturated braid; three conductor—for use on three-phase systems, cores 2 to 14 A. W. G., solid, rubber insulated, rubber-filled tape on 2 to 6 and one saturated braid on 8 to 14, twisted grouping, dry jute fillers, rubber-filled tape covering, and overall of saturated braid; three conductor similar to preceding, but with sizes 0000 to 14 A. W. G. stranded cores, rubber insulation, rubber-filled tape on 0000 to 6 and saturated braid on 8 to 14, twisted grouping, dry jute fillers, cover of rubber-filled tape, and overall of saturated braid.

Light and Power Feeder Cable. A stranded, heavily-insulated single conductor of large capacity for connecting a station to distributing mains, one standard type having a 650,000 circular mil concentric-stranded core with rubber insulation protected with saturated braid, and another type with a 1,000,000 c.m. rope-lay stranded core, rubber insulated, taped, and braided. An outer sheath of lead is usually added. See Main, Mil, Feeder, Power Cable, Cable-Automotive.

Mast Arm Cable. A flexible duplex conductor used for connecting the feeder line and a street arc lamp; so designed that the cable can be passed over a pulley, connected with the mast-arm or bracket on a pole, to be lowered for maintenance needs; sizes of cores, 6 and 8 A. W. G.; stranded conductors, vulcanized rubber insula-

[1] Copyrighted by Henry C. Pearson. Continued from *The India Rubber World*, June 1, 1926, pp. 127-128. See also Crude Rubber and Gutta Percha Definitions, *The India Rubber World*, 1921; Pneumatic Tire Definitions, *The India Rubber World*, 1921 and 1922.

tion or 30 per cent Hevea rubber compound; single saturated cotton braid with or without a belt of dry or 30 per cent Hevea rubber compound; overall covering, two saturated cotton braids.

Park Cable. A cable for lighting current which can be laid directly in earth, instead of being drawn through ducts; usually for low pressure; one type having one to three stranded conductors, each rubber insulated and covered with rubber-filled tape, lead sheathed, asphalted jute, galvanized iron tape wound helically and over it another such tape wound so as to cover the spiral space between the turns of the first tape, and a final covering of asphalted jute; sizes of cores, 0000 to 14 A. W. G.; two-conductor type, twin flat; three-conductor, cores wormed and interstices filled with jute and taped. See Steel-Taped Cable.

Submarine Lighting-Power Cable. An underwater cable of many types for lighting and power current. (1) One conductor cable with a single core formed of nineteen stranded wires, rubber insulated, tubed in lead, padded with jute, armor wired, and sewed with jute. (2) Three-phase cable having three cores, each formed of seven stranded wires, rubber insulated, with jute filling to give cylindrical form and wrapped with rubberized tape and encased in lead. (3) Four-conductor solid core cable having four solid conductors, each rubber insulated, jute padded lead tubed, jute sewed, and heavy wire armored. (4) Four-conductor stranded core cable having four conductors each made of seven stranded wires, rubber insulation, jute padding, wrapping of rubberized tape, and lead encased.

Triphase Cable. A three-conductor lighting and power cable designed for use in a three-phase system, one conductor being grounded or used as a return wire, and the others as hot wires. See Three-Conductor Cable.

Twin Semi-Circular Core Cable. A low-tension cable designed for power transmission under 660 volts and consisting of two practically semi-circular cores of stranded wires insulated with treated paper, cores twisted together and wormed into tubular form, covered with impregnated paper, tubed in lead, served with jute, steel taped, or with galvanized iron wire armor, and having an overall cover of asphalted jute.

Underground Cable. A type of lighting cable designed for laying in conduits or directly in earth, and made especially resistant to moisture. See Park Cable, Steel-Taped Cable, Tinned Cable.

Underground Lighting Cable (Standard). A widely-used type of underground light and power cable having as a conductor No. 8 A. W. G. solid copper wire; insulation, rubber or varnished cambric, lead sheath as a waterproof jacket, cushion of asphalted jute; two tapings of band steel coiled in the same direction, the second covering the joints of the first, such armoring affording flexibility with mechanical protection; also a band-steel armored cable that may be buried without being inclosed in a conduit, and available for standard voltage from approximately 600 to 8,000. See Steel-Taped Cable.

Locomotive Cable. A headlight wire. See Headlight Wire.

Low Tension (Automobile) Cable. See Automotive Cable.

Low Tension Cable. A stranded single or multiple conductor for transmitting currents of relatively low voltage, usually 600 maximum.

Magpie Cable. An odd term for an early make of telephone cable with double pairs of conductors; probably so named from the "cross talk" trouble in the early type of cable. See Paired Cable, Twisted Cable.

Main Feeder Cable. See Feeder Cable.

Messenger Strand. A heavy, solid or stranded galvanized iron (steel) wire from which an aerial cable is suspended between street poles.

Mine Cable, Concentric Type A. Same as duplex concentric stranded mine cable. See Duplex Concentric Stranded Mine Cable.

Mine Cable, Concentric, Type B. Same as duplex concentric stranded mine cable, except that the belt of rubber around the outer or concentric conductor is omitted. See Duplex Concentric Stranded Mine Cable.

Mine Cable, Duplex Concentric Stranded. A low potential (0-600 volts) cable having a tubular form and preferred in some mining operations to the more oval duplex parallel type; the inner conductor is made up of tinned annealed copper wires stranded into a flexible cable and insulated with vulcanized rubber, and either taped or braided; over the tape or braid is stranded the second or outer conductor consisting of many tinned annealed copper wires equal in area or aggregate cross section to the inner or central conductor and insulated with vulcanized rubber, protected with braid or with tape and braid of strong cotton saturated with weatherproof compound, or with seine or hard-spun cotton cord braids, if required, for severe usage.

Mine Cable, Duplex Parallel. A low potential (0-600 volts) cable composed of two flexible strands of tinned annealed copper, laid parallel, each insulated with vulcanized rubber, protected with a braid of cotton saturated in weatherproof compound, and both then bound together with two or three strong cotton braids saturated in weatherproof compound, or with hard-spun cotton braid if for particularly rough usage; used for mining gathering reel locomotives, cutting machines, hoists, and drills in rough operations; sizes, 2 to 10 A. W. G. Also known as Twin (flat) Mine or Mining Machine Cable.

Mine Cable, Single Conductor. A single stranded, flexible conductor mine cable used for operating a reel locomotive run on steel tracks which can be used for the return current; sizes of cores, 2, 3, 4, 6, A. W. G.; vulcanized rubber insulation; covering, rubber-filled tape; overall covering, extra heavy cotton or seine-twin braid saturated with waterproof composition.

Mine Cable, Triplex. A mine cable designed for three-phase motor equipments, and usually for pressures up to 600 volts (low potential;) three stranded conductors; core sizes, 2, 4, 6, 8, A. W. G., flexible; insulation of cores, vulcanized rubber; insulation of covering, saturated cotton braid or rubber-filled tape; conductors wormed about one another, twisted grouping; jute fillers between conductors; rubber-filled tape over fillers; overall covering, one or two tightly-woven cotton braids saturated with waterproof composition.

Mine Cable, Twin Flat. Same as mine cable, duplex parallel. See Mine Cable, Duplex Parallel.

Mine Cable, Two-Conductor, Round. A cable designed for purposes similar to those for which a duplex parallel mine cable (which see) is employed, and having two conductors; sizes of cores, 2, 4, 6, A. W. G., flexible; insulation, vulcanized rubber; cover of insulation, one saturated braid; conductors wormed, twisted, about each other; interstices filled with dry jute; covering of rubber-filled tape; overall covering, extra heavy cotton or seine-twine braid saturated with waterproof composition.

Morse Cable. (Historic) Early American type of underwater insulated conductor devised by Professor Samuel F. B. Morse, inventor of the telegraph. The cable consisted of a "copper wire insulated with pitch, tar, and rubber." Two lengths, each measuring a mile, were laid in upper New York Bay between Castle Garden and Governor's Island, and over the cable Professor Morse first transmitted signals on October 19, 1842, demonstrating the feasibility of subaqueous as well as landline telegraphy.

How the Rubber Exchange Benefits the Manufacturer

By Francis R. Henderson, President, the Rubber Exchange of New York, Inc.

THE Rubber Exchange of New York has been in operation just over four months, and this period has been marked by a gradual increase in the amount of business transacted. There have been days of extreme activity, and, of course, other days when trading has been on the light side, but, generally speaking, it has found its way into the trade itself with a remarkable absence of confusion or misunderstanding. The total amount of rubber traded in during these four months was 66,867 tons, and while this covers all positions traded in, which means twelve months forward, about 5,000 tons have been actually delivered during May and the first two weeks of June. Out of all the deliveries there have, so far, been but eight arbitrations on quality. These have been quickly settled, and the rubber delivered without additional expense incurred.

The trading has embraced trade buying and selling, quite some business for account of manufacturers, and a large amount of hedging, both for account of manufacturers and foreign shippers. Much has been said about the Exchange encouraging speculation to the detriment of the industry itself. To be sure, it facilitates speculation, but on a definitely and soundly organized basis. Such speculation is in no way a detriment to any commodity market. Many books have been written on the subject of speculation, and only the uninformed condemn it where organized trading exists. All commodity exchanges serve as a world's clearing house for trade and crop information, and in this respect render an invaluable service to producer, merchant and consumer. The orderly manner of price movements on the Rubber Exchange under very precarious market conditions in the past three or four months is the best evidence of the place it is bound to attain among the commodity exchanges of America.

Hedging Explained

Perhaps the hedging facilities afforded by the Exchange are of most interest to the trade itself. A rubber manufacturer has an opportunity to close a contract for his finished product, but the business is highly competitive, and he is compelled to figure his rubber at the prevailing market price. The delivery of the finished product, however, is for next October. He is quite satisfied to do the business on the basis of his manufacturing profit, and desires to eliminate speculation in the raw material. He immediately, through a member of the Exchange, buys the necessary amount of rubber for September delivery, the month in which he needs the rubber for manufacturing. We will assume that he needs a particular grade of rubber, which he is not certain of getting on the Exchange contract, which permits optional deliveries. Sometime during the latter part of August, he can buy this particular grade of rubber from an importer, and at the same time sell out his purchase on the Exchange. In this manner he has had absolute price insurance, and his factory is operating on a manufacturing profit.

Hypothetical Case of Hedging

From the crude rubber man's standpoint, we will take a hypothetical case, as follows: Brown & Co., in Singapore, cable to John Smith, their agent in New York, offering 100 tons of blanket crêpes for July shipment, at 40 cents per pound, delivered New York. Smith offers it out in the trade, but finds no response at the price, although in his judgment the value seems fair, against a quoted price of 43 cents for ribbed smoked sheets for equivalent arrival New York (September). He immediately sells 40 lots (100 tons) of sheets on the Rubber Exchange for September delivery at 43 cents, and cables Brown & Co., Singapore, accepting 100 tons of blankets at 40 cents. He has clinched the business with his shipper, and continues his efforts each day until he sells the 100 tons of blankets, even though the market has declined, at 38 cents. When he sells the blankets here, he immediately liquidates his hedge on the Exchange by buying in the sheets for September delivery. There has been a corresponding decline, and he covers the sheets at 41 cents. The resulting loss on the blankets is offset by the resulting profit on the sheets.

In this manner, business is facilitated with his shipper, and his original commission, which was included in the 40 cents price on the blankets, is obtained, and he has made his merchant's profit without any speculation. During the period of his open contract on the Exchange, he, of course, puts up margin, but in return the Clearing House credits him with margin on the declining market, because his "short" sale showed a profit.

Immediate Purchases or Sales

The Exchange also affords the means of immediate purchase or sale, which experience in the past has shown us is not always possible in an outside market. If conditions confronting the industry indicate that prices are going materially lower, usually the whole trade is cognizant of the conditions, and in the effort to dispose of surplus raw material either for near delivery or forward delivery, it has been very difficult to find buyers. Experience on all exchanges has proved that the speculative element in a market makes for immediate selling or buying.

Functions of Produce Exchanges

Twenty-five years ago, Professor Huebner, in writing on the functions of produce exchanges, pointed out that "short-selling in the market is often of the greatest benefit in repressing rampant speculative enthusiasm on the one hand, and in checking the effect on prices of excessive pessimism on the other. Short sellers do not determine prices. By selling they simply express their judgment as to what prices will be in the future. If their judgment is wrong, they will suffer the penalty of being obliged to go into the market and buy the commodity at higher prices. Nine-tenths of the people are by nature 'bulls,' and the higher prices go, the more optimistic and elated they become. If it were not for the group of short sellers, who resist an excessive inflation, it would be much easier than now to raise prices through the roof; and then, when the inflation became apparent to all, the descent would be abrupt and likely unchecked until the basement was reached. The operations of the 'bears,' however, make excessive inflation extremely expensive, and similarly tend to prevent a violent smash, because the bear, to realize his profits, must become a buyer when he covers. Short-selling, instead of unduly depressing prices as many would have us believe, is often the most powerful support which the market possesses. It is an ordinary affair to read in the press that the market is sustained or put up at the expense of the 'shorts' who, having contracted to deliver at a certain price can frequently be driven to 'cover.' Short-selling is thus a beneficial factor in steadying prices and obviating extreme fluctuations. Largely through its action, the discounting of serious and unfavorable events does not take the form of a sudden shock or convulsion, but, instead, is spread out over a period of time, giving the actual holder of the commodity ample time to observe the situation and limit his loss before ruin results. The constant contest between the judgments of the bulls and the bears is sure to give a much saner and truer level of prices than could otherwise exist."

A thoughtful review of the crude rubber market in the past few years makes the above remarks rather pertinent.

Rubber Compounding Room[1]

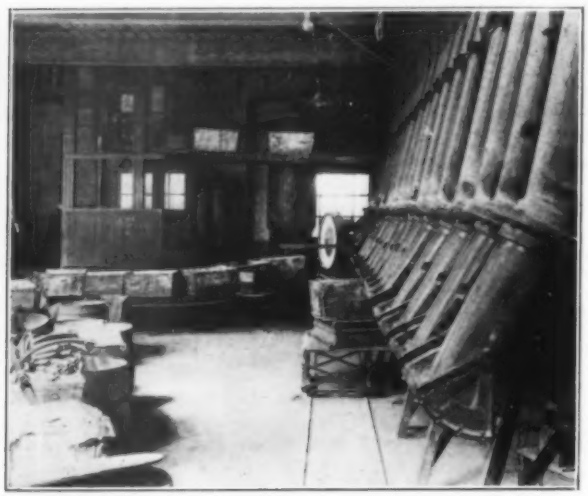
Essential Arrangement — Compound Boxes — Electric Lift Trucks — Weighing and Compounding — Automatic Weighing—Conveyer System—Check Weighing and Delivery

PROCESSING of clean dry rubber in a rubber factory begins in the milling department which comprises the compounding, grinding, mixing and compounded rubber storage rooms. In the compounding room the clean dry rubber, the reclaimed rubber and other compounding ingredients are weighed out for individual mixings according to written instructions from the laboratory. In the grinding or mill room crude rubber is broken down preparatory to mixing and the latter process is effected in roller mills or internal mixers. In the storage room the batched mixings after cooling are held in bins for use as needed.

The equipment of these rooms is in general much the same in all rubber factories because the methods of preparation of compounded rubber are practically alike. The more marked differences in plant equipment occur in the succeeding departments where the details of construction for special lines of goods, as for example, footwear, tires and tubes, mechanicals, proofing, etc., are conducted.

One of the essential requirements in rubber working is that every material used in compounding should be dry when delivered to the rubber worker. As a precaution for keeping them dry, a hot room or kiln is a most desirable adjunct to the compounding room. This is particularly necessary in the case of storage of ingredients for use in dry heat goods not cured under pressure, such as the older types of rubber footwear or clothing; also where sifting of dry ingredients is practiced to insure removal of accidental grit, etc.

The location of the hot room should be adjacent to the compound weighing room. Frequently it is placed on the floor above



Manhattan Rubber Mfg. Co.

Compound Delivery Chutes

with the series of bins for holding the stocks of different powdered ingredients. In this dry or bin room should be located the sifters mentioned.

[1] See "Washing Crude Rubber, Balata and Gutta," *The India Rubber World*, April 1, 1926, pp. 5-7; "Drying Crude Rubber," *The India Rubber World*, May 1, 1926, pp. 67-70.

Essential Arrangements

The compounding room is the weighing department for batching ingredients according to the laboratory mixing formula. Its arrangement and equipment are determined by the daily number of batches needed to produce the factory capacity output. If possible the room should adjoin the mixing department, open into it along one side to facilitate trucking batches or conveying them by automatic conveyer.

In any event the room should be well lighted and ventilated and the supplies be easily accessible. Usually in small plants only the simplest facilities are furnished. These would comprise: raised platforms or wall benches for holding stocks of crude and reclaimed rubbers; a set of bins for special ingredients; a weighing bench with scales for light weights; and floor scales for heavy weights and checking full batches. In such a room barreled in-

Firestone Tire & Rubber Co.

Checking Weights of Batches

gredients are standing about in regular order and those in bags may be emptied into a central group of covered bins.

Mineral rubber and softeners call for special handling facilities according to their nature. For example, solid drums of mineral rubber or hard wood pitch are emptied by removal of their sheet metal containers. The solid masses of material can then be broken small by any convenient hand tool and stored in an open bin. When large quantities of mineral rubber are used a power crusher is most advantageous for reducing it to small pieces convenient for weighing.

Fluid and semi-fluid softeners like oils, coal-tar, etc. are stored in tanks or barrels from which they are drawn off, or dipped as needed. Hard tar or soft mineral rubber may be transferred from their original packages to a tank having a steam coil within or to a steam jacketed kettle and heated for use.

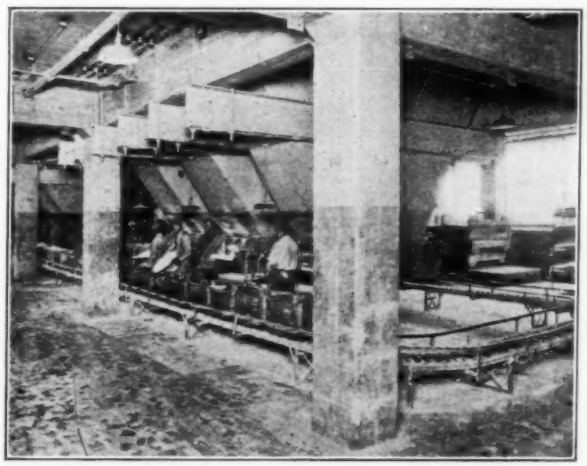
Compound Boxes

In whatever receptacle stored the ingredients are weighed up into boxes according to tickets indicating the proper formula of the mix and the number of batches wanted. The former practice of using heavy wooden boxes as receptacles into which to weigh

the rubber mixing ingredients justly fell into disuse because of their liability to give up splinters. These became concealed in the rubber and ultimately caused damage of the finished articles. Modern batch boxes are built of sheet steel or indurated fiber, reinforced to withstand rough handling. For light work they are often made with tapering walls to permit nesting them which is a convenience in handling and storage.

Electric Lift Trucks

In small or moderate size plants barrel and platform hand trucks have been displaced by some form of jacklift truck by means of which one man can lift and move easily a heavy load of stock on a portable raised platform. Such lift trucks are not only



Firestone Tire & Rubber Co.

Weighing Rubber Compounds

convenient for moving compounding ingredients and mixed stocks but also for general factory transport work.

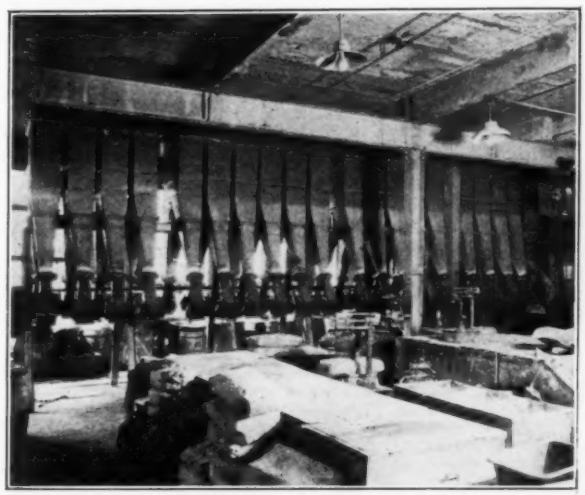
Weighing and Compounding

In large plants the compounding room is completely organized for automatic handling and even weighing of the materials. Such a compound room is pictured in the group illustration[2]. Here the dry materials are stored in bins on the floor above from which they descend through sheet iron chutes and discharge by quick opening outlet gates into the compound boxes resting on scales. They thus receive their weights of ingredients as they pass along the track from one chute to another. When weighing is completed the batch boxes pass on by gravity or roller conveyer to the mixing room, returning empty by similar means for new batches.

Batches commonly consist of rubber, reclaim, fillers, softeners and vulcanizing ingredients. The work of weighing these items is apportioned among the weighmen accordingly. For example, one man cuts and weighs rubber and reclaim; a second, the fillers or dry ingredients from the chutes; a third, the softeners, mineral rubber, oils, etc. Still another, the vulcanizing materials, sulphur and accelerators. The last are put in small containers separate from the general batch for accuracy and precaution against their omission.

Accuracy in weighing has a direct bearing on uniformity of product and conservation of profit. The compounding room is in effect dispensing basic value. In some rubber plants the importance of accurate weighing is not appreciated, perhaps because the ingredients have small intrinsic value. This lack of appreciation is responsible for the use oftentimes of scales that should

[2] "Conveyer System for Compound and Mill Rooms," *The India Rubber World*, February 1, 1923, pp. 295-6.



Manhattan Rubber Mfg. Co.

Delivery Chutes and Tanks for Softeners

be discarded as worthless. The accuracy usually expected in batch weighing is within one per cent of the weight called for by the mixing formula and is subject to close checking before mixing.

Automatic Weighing

For large scale operations of weighing compounds after the same formula a special automatic machine has been devised. This machine receives the material in a hopper from an overhead storage bin. Below and communicating with this hopper is a screw conveyer electrically operated. A gate at the end of the worm conveyer opens and the screw advances the material which falls into a container resting on a platform scale. When sufficient material has been discharged by the conveyer to counterbalance the weight setting of the scale, its beam tips and makes an electric contact, which closes the end gate of the conveyer and opens a shutter in an air suction pipe. This permits the removal by suction of any excess weight of material from the container on the scale until the weighing beam descends to an even balance. At this point the contact is broken and the suction cut off by the shutter in the pipe. The weighed material is dumped by opening a shutter in the bottom of the chute container allowing it to discharge into a movable receptacle.

Checking and Delivering Batches

In large scale operations the movement of batches is accomplished entirely by a conveyer system such as those seen in the illustrations herewith. In one instance, picturing compound weighing, the crude rubber, pigments and other materials are weighed separately as the steel boxes pass along the conveyer, the materials being placed in the boxes at various points along the conveyer system. The boxes in their progress toward the mixing room pass the check scale, as shown. Here a weighman is stationed to note the gross weight of each box and contents to see if it agrees with the correct amount. If it shows excess under or overweight he shoves it off the conveyer. If the correct weight is indicated the box is allowed to proceed and passes down a spiral roller conveyer into the mill room for mixing.

DURING THE CALENDAR YEAR 1925 AMERICAN EXPORTS OF RUBBER thread had a total value of $1,815.665 as against a value in 1922 of $1,193,301. The leading markets for these goods during 1925 were: United Kingdom, $624,308; France, $528,293; Italy, $161,683; Japan, $114,639, and Canada, $110,368.

Practical Hints on Softeners

SINCE the advance in crude rubber the compounder's attention has been turned to materials for replacing it without any detrimental effect on the finished product. Most of the materials available for the chemist have a softening effect on the mixture in the raw state, and this softening is reflected one way or another in the finished goods. Care must be exercised, however, in the choice of softeners, and their wide use is so recent that there still exist differences of opinion as to the best ones to use for certain results.

The usual softeners available on the market can be divided into three classes: (1) Resins and pitches, crude and synthetic; (2) Oil and liquid softeners; and (3) Waxes. These are sold under various trade names and also differ in melting points and degrees of softness.

Under resins and pitches, the more common ones are colophony resin, asphalt or mineral rubber, and various synthetic resins. Colophony or common resin is used in many cheap frictions up to 5 per cent by volume in some cases. In adhesive tapes and the cheaper hose frictions, it will replace a small amount of the usual soft rubbers. It is apt to slow up the cure if used in excess due to its acid reaction. There are now on the market a number of pitches from both hard and soft woods. The hard wood pitches make very good softeners for high rubber content stocks, as tire frictions, treads, etc. One may use 5-10 per cent by volume in these compounds with perfect safety. Most of these materials have a slight accelerating action.

Burgundy pitch is a very sticky resin and has for years found favor in adhesive tape and similar tacky, non-drying stocks. Natural asphalts and mineral rubbers, which are usually compounded with gilsonite and petroleum residues, are used in enormous quantities in all grades of compounds both as softeners and diluents. In some cases as high as 50 per cent M. R. has been used successfully, but in general 10-15 per cent by volume is found more practical, as high percentages cause bloom in the raw state. For molded articles like black rubber soles, however, M. R. is generally employed effectively, the bloom being no deterrent as it facilitates separation of the soles after cutting. Stocks with high M. R. content are difficult to hold to gages, however. Mineral rubbers and asphalts are not prone to oxidation and make a dense, tough stock after vulcanization. Of course, these products are limited to dark colored stocks and have a tendency to neutralize bright colors. There are also a few synthetic resins and pitches which function nicely in compounds, but these must be used with care unless the exact composition is known to the chemist.

Several new softeners have recently been placed on the market. The recommended practise for one of these is to use 2 to 3 per cent on the rubber. It has the property when used with litharge to quicken slow cure rubbers such as roll brown. Current practise in using it is to add it to the batch containing no M. R. as soon as the crude rubber clings to the roll. In a batch containing M. R., after the rubbers and M. R. have been thoroughly worked in and a nice bank rolling on the mill, the material should be broken up quite fine before mixing as large chunks will cause sticking.

The adding of softeners to the mix and handling them in the compound weighing room should be standardized as much as possible. Resins and M. R. are usually weighed out on a small scale, placed in small pans which are set on top of the large compound pan containing the powders and rubbers. After the rubber is thoroughly heated on the mill, the softener is added and allowed to become thoroughly immersed before the rest of the compound is added. Oil and liquid softeners are usually stored in tanks, with heat applied through steam coils, to keep them in a soft state. They are often run directly into the center of a pan of compound from a spigot, but in some cases added in small pans. Waxes, stearic acid, etc., which come in cake form are usually shredded into fine pieces before going to the mixing mill as part of a compound.

The oil and liquid softeners comprise a number of tars, vegetable and mineral oils, and blends of different soft or tarry materials. Many of the materials in this group contain complex aromatic compounds which impart an objectionable odor to the vulcanized goods. This is particularly noticeable in the wood and coal tars, although years ago, coal tar was used so extensively in black rubber footwear that the trade would not believe the goods to be of first quality unless they gave forth a good tarry odor. Coal tar in dark colored shoe stocks, hose, and many molded goods is an excellent softener, and keeps the raw stock in the best of condition for calendering. Pine tar is an excellent softener both in heavily loaded compounds and also in high rubber content stocks; 2 to 5 per cent by volume being usual. Pine tar has a marked accelerating action especially in compounds carrying litharge.

Palm oil is often a great help in calendering very tacky stocks. Large amounts should be avoided in any stock since it is active in depolymerizing crude rubber. Cotton seed oil is used widely in automobile tube stocks and other high grade compounds. It has an affinity for sulphur, and this must be taken into consideration in balancing a compound containing this oil. Linseed oil is a drying oil and should be avoided in most cases; in some frictions, however, it has valuable properties. Wool grease is often used as a substitute for vegetable oils, and in most cases smaller amounts are sufficient, oftentimes as low as 1 per cent by volume giving desired results. This is a very popular softener in European rubber plants. Petrolatum is used to a great extent in mechanical goods. It seems to soften reclaims and semi-cured trimmings very readily.

Waxes are used less in compounding than any other class of softeners, yet in some cases they perform to the best advantage. Paraffin is used in many stocks to retard blooming. If used in excess it produces a wax bloom which is objectionable on some products. It may also produce a wax film on calendered stocks that makes adhesions poor when making up the goods. This difficulty would be serious in footwear and druggists' sundries where preservation of tack is important to weld the parts together. Ceresin and sweet wax are invaluable in stocks for tubing where they facilitate the machine action. Beeswax has little softening effect, but is valuable in hard rubber compounds. Stearic is sometimes used in breaking down crude rubber in very small percentages.

The above resumé covers present day uses of softeners briefly. It should not be inferred that they are employed chiefly as cheapeners. Many of them are absolutely necessary to flux the rubber properly with the powders in the compound. Some are used to decrease the milling time of crude rubber; while others prevent an undesired bloom or produce a desired tack. There is no question that the further employment of softeners in the present crude rubber crisis is possible and will be of great aid in maintaining standards.

THE PANAMA GOVERNMENT HAS CONCEDED TO A BRITISH CORPORATION for a definite term of years a tract of some 2,000,000 acres of public land said to be suitable for rubber cultivation, in Veraguas and the Darien region of Panama. The concern, known as the Panama Corporation, Ltd., is said to be interested only in the mining possibilities of the region in question.

Some Problems of Rubber Restriction[1]

A significant change has lately come over the world's rubber industry. During the last five months crude has declined more than 50 per cent; and the tension between Great Britain as producer, and America as consumer has been relieved. The present is opportune for a British observer to put his country's case before American readers. The following article reviews the working of restriction as it existed from November, 1922, to April, 1926, discusses the effect of the amendments recently made and estimates the probable course of events in the light of the conclusions drawn

THE original enactment of the Stevenson Scheme towards the end of 1922 was avowedly a leap in the dark; an effort to avert what was believed to be an imminent catastrophe in the plantation industry. Those chiefly concerned at that time held the opinion that the world's productive power was greatly in excess of its consumptive capacity. Most people now admit that this view was mistaken, and that the real cause of the unprofitable prices then prevailing was a temporary failure on the side of consumption, due chiefly to the widespread adoption of the cord tire, with its significantly longer life, and the depression in American trade which had succeeded the post-war boom. This misconception has undoubtedly had most unfortunate results, but it is only fair to point out that the amazing subsequent prosperity of the United States and the extraordinary development of the motoring habit among all classes, which has raised the total American motor registration from seven and one-half millions in 1919 to nearly twenty millions last year, were unforeseen on both sides of the Atlantic. The charge that the British Government desired to make American rubber consumers responsible for a large slice of Britain's annual war debt payments is disproved by the historical fact that the restriction scheme had already been in force for some months when the debt-funding scheme was initiated.

The Stevenson Committee which drew up the scheme of releases adopted by the British Government had no precedents to guide it, and its figures were necessarily of an arbitrary character. They failed to envisage the possibility of any substantial increase in price above the 1/6*d* level, which was regarded as "fair" both to producers and consumers, or to foresee the necessity of allowing quarterly releases greater than 10 per cent of "standard" production. Putting on one side for the moment the general question whether any organized interference whatever with the normal relations of supply and demand was economically justifiable, the chief practical objection to the scheme in its original form was its ultra-rigidity. But this fatal defect was not apparent until the scheme had been in force for a considerable time. The following record of the average quarterly price of spot rubber in London from November, 1922, to the present time, shows that in the early days of the scheme prices were maintained somewhere near the level its creators had in mind; that they subsequently dropped well below that level; and that it was only after two-and-a-half years that quotations soared to heights rightly to be regarded as detrimental to consumers.

AVERAGE LONDON "SPOT" PRICE OF RIBBED SMOKED SHEET RUBBER DURING EACH RESTRICTION QUARTER

Three Months Ended	Price per lb.		Maximum Exportable *Allowance	Three Months Ended	Price per lb.		Maximum Exportable *Allowance
1923	*s*	*d*	Per Cent	1924	*s*	*d*	Per Cent
January 1.....	1	2.285	60	July 31.....	0	10.974	60
April 30.....	1	4.856	60	October 31.....	1	2.632	55
July 31.....	1	2.242	65	1925			
October 31.....	1	2.944	60	January 31.....	1	5.998	50
1924				April 30.....	1	7.356	55
January 1.....	1	2.175	60	July 31.....	3	2.469	65
April 30.....	1	0.917	60	October 31.....	3	7.269	75
				1926			
				January 31.....	3	10.709	85
				April 30.....	2	3.916	100

*Percentage of "standard" production exportable from Malaya, Ceylon, etc., at minimum rate of duty.

The amended scheme, recently announced by the British Government, is scarcely calculated to make a favorable impression on rubber consumers. In the first place it shows that restriction is to be indefinitely continued. There would seem to be no good reason for interfering with the free play of supply and demand in an industry which is admittedly on its feet again, merely because there is a possibility of its being sometime or other less prosperous than at present. It may be granted that opinion among planting interests is much more unanimously in favor of restriction than at this time twelve months ago, but this is only natural among those who have seen fabulous profits changed in the last few months to merely large profits and are anxious to be safeguarded against any further drop. The new announcement, again, infers that the British Government has enlarged its conception of what constitutes a "fair" price, since the pivotal figure is no longer 1/3*d* but 1/9*d*. The percentage of "standard" production exportable at the minimum rate of duty from the British Colonies is maintained at 100 per cent for the May-July quarter, but a decline in the average price to less than 1/9*d* will involve curtailment of the exportable figure by as much as 20 per cent. The "elasticity" in this case operates to the detriment of the consumer, but presumably if prices rose over the 1/9*d* level in any subsequent quarter, the exportable percentage would be raised with equal alacrity. One is left to arrive at this conclusion by a process of equitable deduction, the official announcement itself making no mention of events beyond this quarter and the next. Both producers and consumers would have gained had the British Government been more definite with regard to its future intentions. Any suspicion that it had no fixed policy but intended to play an opportunist part and arbitrarily to vary its procedure from quarter to quarter would introduce a feeling of insecurity which could not but be damaging to the interests of legitimate trade. If we are to have restriction at all, let us at least know where we stand.

The rôle of restriction during the next few months is difficult to assess at the moment, and may be less for all practical purposes than is generally imagined. The British Government has now abandoned all maxima in the matter of assessments as regards all but the smallest estates, which means that while local committees in the plantation areas will continue to fix the "standard" figure for each estate, they will be free to take every case on its merits and allow the best situated producers to obtain full benefit of their advantageous economic position. In these circumstances, and with the exportable percentage at 100, the general effect will probably be that so long as the London price does not fall near 1/9*d* economic tendencies will have full play, and matters will be adjusted as if restriction were non-existent. Should prices approach that figure, however, restriction will immediately begin to exercise a very important moral influence.

The returns for the last few months show, on one hand, that British estates have not so far been able to produce up to the full 100 per cent capacity, and on the other, that demand from consumers has been sufficient to absorb the whole of the supplies coming forward. These conditions may be abnormal—the effects of "wintering" on the estates and of an exceptionally late spring in North America have to be considered—but for the present at any rate there is certainly no world shortage of rubber. The future is dependent on many factors; not least the problem of maintaining the general business prosperity of the United States at its present high level.

[1] By Hargreaves Parkinson, Assistant Editor of *The Economist*, London, England.

A Twelve Year Survey of the United States Tire Industry

By Richard Hoadley Tingley

THE world has probably never before witnessed a more spectacular advance in an industry than that achieved in tire manufacture since the outbreak of the World War, the only exception being the strides made by its sister and interdependent, the motorcar industry.

Since the beginning of 1914 the manufacture of motor vehicles has increased in number made per year 580 per cent, and in value of the same, 550 per cent. During the same period of twelve years automobile pneumatic casing manufactures have increased in number from 8,021,371 to 45,845,854, an advance of 471.5 per cent, and in value from $105,678,921 to $553,919,336, or 405.2 per cent.

More phenomenal still has been the increase in automobile inner tube output from 7,907,351 to 62,335,807, or 688.3 per cent, while the value of these tubes increased but 386 per cent.

The details of these figures, as well as of those of the intervening years 1919, 1921 and 1923, may be seen by reference to Table 1 and Graph 1.

During this period the average unit value of automobile pneumatic casings has declined from $13.17 in 1914, to $11.65 in 1925, and of inner tubes from $2.54 to $1.56. In the former case the price of 1914 was 13.1 per cent higher than that of 1925, and in the latter, 62.2 per cent, as may be seen by reference to Table 4 and Graph 4.

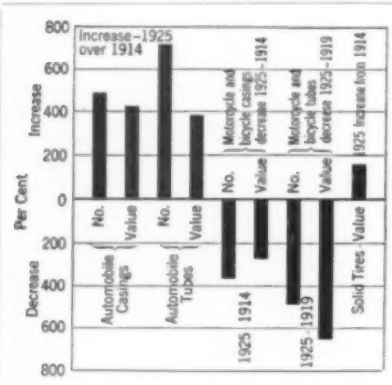
A study of the pneumatic automobile casings manufactured per car per year, including tires for both original equipment and replacement, discloses a decline from 14.7 in 1914 to 12.4 in 1925, while the use of inner tubes per car increased from 14.5 to 16.8. The manufacture of tubes per casing increased from 0.98 in 1914, to 1.36 in 1925. These figures in detail, together with those of 1919, 1921, and 1923, may be seen by reference to Table 3 and Graph 3.

The twelve years under review, shown in Table 2 and Graph 2, disclose the fact that, taking the whole tire industry into account, the number of wage earners has increased but 8.3 per cent, while the amount of wages paid has increased 128.3 per cent, with an

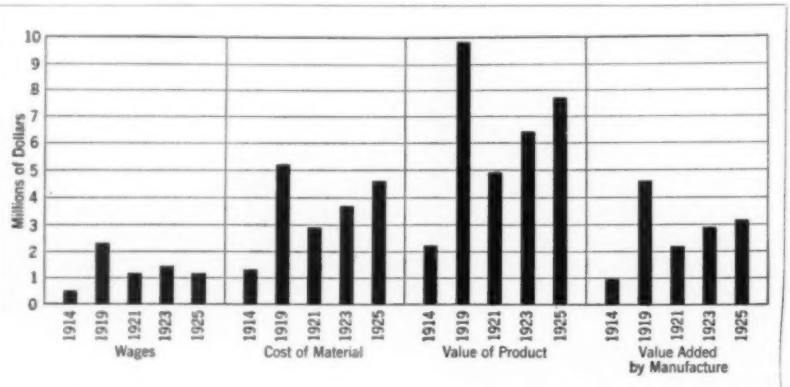
TABLE 1. NUMBER AND VALUE OF CASINGS, TUBES AND SOLID TIRES MANUFACTURED IN THE UNITED STATES—1914-1925 INCLUSIVE

		1914	1919	1921	1923	1925	Per Cent In or Dec 1914-25
Automobile Pneumatic Casings	*Number*	8,021,371	32,835,509	27,297,919	45,362,747	45,845,854	+471.5[c]
Value of Pneumatic Casings	*Dollars*	105,678,951	603,896,200	377,829,338	457,374,439	533,919,336	+405.2[c]
Automobile Inner Tubes	*Number*	7,907,351	33,255,410	32,082,002	56,933,646	62,335,807	+688.3[c]
Value of Inner Tubes	*Dollars*	20,101,084	81,312,576	52,858,181	74,660,021	97,701,711	+386.0[c]
Motorcycle and Bicycle Casings	*Number*	3,728,138	4,656,121	1,623,772	3,668,114	810,792	—359.8[d]
Value of Motorcycle and Bicycle Casings	*Dollars*	6,905,853	13,449,225	3,946,066	5,016,050	1,918,081	—260.1[d]
Motorcycle and Bicycle Inner Tubes	*Number*	[a]	1,125,097	351,281	642,696	197,688	—469.1[e]
Value of Motorcycle and Bicycle Inner Tubes	*Dollars*	[a]	1,347,012	317,109	672,955	178,260	—655.7[e]
Solid Tires	*Number*	[b]	1,454,807	401,388	923,549	966,144	— 50.5[c]
Value of Solid Tires	*Dollars*	13,735,681	43,917,152	14,735,925	28,203,142	41,125,510	+126.6[c]

(a) Included in casings. (b) Figures not available. (c) Increase, 1925 over 1914. (d) Decrease, 1925 from 1914. (e) Decrease 1925 from 1919.



GRAPH 1. PER CENT OF INCREASE OR DECREASE IN NUMBER AND VALUE OF CASINGS AND TUBES, 1914 (1919)—1925. (SEE TABLE 1)



GRAPH 2. GRAPHIC HISTORY OF TWELVE YEARS OF TIRE MANUFACTURE IN THE UNITED STATES, 1914-1925. INCLUDES CASINGS, TUBES, AND SOLID TIRES. (SEE TABLE 2.)

TABLE 2. TWELVE YEARS OF TIRE MANUFACTURE IN THE UNITED STATES—1914-1925. INCLUDES PNEUMATIC CASINGS, INNER TUBES AND SOLID TIRES FOR AUTOMOBILES, BUSES, TRUCKS, MOTORCYCLES AND BICYCLES

		1914	1919	1921	1923	1925	Per Cent Increase 1914-25
Wage earners	*Number*	62,257	160,842	68,872	86,939	67,417	+ 8.3
Wages	*Dollars*	43,905,632	231,756,285	107,118,985	139,511,405	100,237,612	+128.3
Unit of wages	*Dollars*	705	1,441	1,555	1,605	1,487	+110.9
Cost of materials	*Dollars*	126,111,673	525,686,309	291,554,377	364,585,403	455,494,706	+261.2
Value of products	*Dollars*	223,610,784	987,088,045	496,123,335	643,336,253	768,391,932	+224.4
Value added by manufacture	*Dollars*	97,499,111	461,401,736	204,568,958	278,750,850	312,879,226	+220.9

Figures compiled from United States Census reports.

increase in the unit wage paid from $705 in 1914 to $1,487 in 1925, a rise of 110.9 per cent.

The most significant figures seen in Table 2 and Graph 2 are those showing the increase in the cost of materials that enter into the making of a tire, the value of the product, and the value added in manufacture. These materials, in themselves, have advanced in cost 261.2 per cent; in value of product, 224.4 per cent; and in the value added by manufacture, 220.9 per cent.

Turning to the manufacture of tires other than automobile pneumatic, and to other inner tubes, a marked decline is noted by reference to Table 1 and Graph 1. In 1914, 3,728,138 casings for motorcycles and bicycles were turned out, while in 1925 the number was but 810,792. The production in 1914, therefore, was 359.8 per cent more than that of 1925, and the value of these, 260.1 per cent.

In the inner tubes for motorcycles and bicycles, 1914 production was 469.1 per cent more than that of 1925, and in value 665.7 per cent.

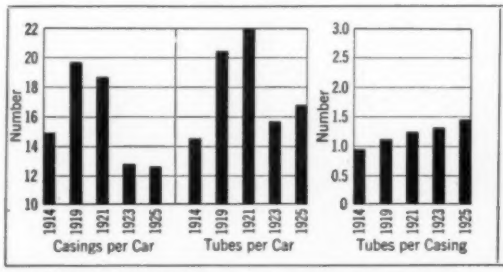
It is instructive to note, also, that while the number of solid tires made in 1914 was 50.5 per cent more than that of 1925, the value of some advanced 126.6 per cent from 1914 to 1925. While this change was in progress the average unit value of solids advanced from $30.12 in 1919 to $42.16 in 1925, or 40 per cent, as may be seen by reference to Table 4 and Graph 4.

The figures used as a basis for the tables and graphs are taken from the various reports of the United States Census and from the National Automobile Chamber of Commerce.

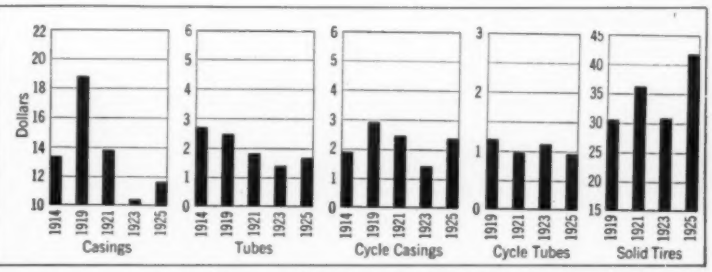
TABLE 3. TABLE SHOWING THE RELATIVE PRODUCTION OF CASINGS AND INNER TUBES PER AUTOMOBILE, AND OF INNER TUBES PER CASINGS, 1914-1925 INCLUSIVE

	1914	1919	1921	1923	1925
Automobile production	543,679	1,657,652	1,452,902	3,566,261	3,699,991
Tire Casing production	8,021,371	32,835,509	27,297,919	45,362,747	45,845,854
Inner Tube production	7,907,351	33,255,410	32,082,002	56,933,646	62,335,807
Casings per car[a]	14.7	19.8	18.8	12.7	12.4
Tubes per car[a]	14.5	20.1	22.0	15.9	16.8
Tubes per casing	0.98	1.01	1.17	1.25	1.36

(a) For original equipment and replacement.



GRAPH 3. PRODUCTION OF CASINGS AND TUBES PER CAR, AND TUBES PER CASING. (SEE TABLE 3.)



GRAPH 4. UNIT VALUES IN DOLLARS OF CASINGS, TUBES, CYCLE CASINGS AND TUBES, AND SOLID TIRES, 1914-1925. (SEE TABLE 4.)

TABLE 4. AVERAGE UNIT VALUE IN DOLLARS OF CASINGS, INNER TUBES AND SOLID TIRES, 1914-1925 INCLUSIVE, WITH PERCENTAGE OF CHANGE

	1914	1919	1921	1923	1925	Per Cent Increase or Decrease 1914-25
Automobile pneumatic casings	13.17	18.39	13.84	10.08	11.65	[a]— 13.1
Automobile pneumatic inner tubes	2.54	2.44	1.65	1.31	1.56	[a]— 62.2
Motorcycle and bicycle casings	1.85	2.90	2.43	1.37	2.37	[b]+ 28.1
Motorcycle and bicycle inner tubes	....	1.19	0.90	1.05	0.90	[c]— 32.2
Solid tires	....	30.12	36.71	30.53	42.56	[d]+ 40.0

(a) Decrease, 1925 from 1914. (b) Increase, 1925 over 1914. (c) Decrease, 1925 from 1919. (d) Increase, 1925 over 1919.

Inventory—Production—Shipments of Pneumatic Casings—Inner Tubes—Solid Tires—Rubber and Fabric Consumption

	High Pressure Pneumatic Casings						Balloon Casings			Solid and Cushion Tires		
	Cord			Fabric								
	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments
Twelve mos. 1925.	3,723,296	23,631,807	22,685,933	607,681	6,433,865	7,211,608	1,775,428	15,567,644	14,628,137	148,080	758,900	800,395
1926												
January	4,453,490	1,621,383	1,045,302	810,883	402,784	184,951	2,195,922	1,416,409	1,000,490	170,674	57,928	34,361
February	4,907,181	1,796,189	1,187,990	978,152	254,537	103,127	2,487,498	1,598,246	1,285,999	196,477	59,318	29,629
March	5,159,199	1,840,268	1,526,416	1,217,416	396,746	218,490	2,626,745	1,855,022	1,676,170	218,991	57,218	37,369
April	5,187,115	1,597,394	1,622,690	1,327,251	300,849	193,376	2,831,328	2,111,056	1,919,060	214,115	49,401	51,025

	High Pressure Inner Tubes			Balloon Inner Tubes		
	Inventory*	Production	Total Shipments	Inventory*	Production	Total Shipments
Twelve mos. 1925.	6,489,331	45,864,008	45,887,316	1,995,277	16,096,518	14,856,699
1926						
January	8,297,117	3,537,722	1,706,680	2,473,366	1,569,248	1,085,352
February	9,966,723	3,316,739	1,568,305	2,850,865	1,801,922	1,233,663
March	11,106,395	3,076,338	1,936,927	3,241,677	2,196,118	1,803,394
April	11,629,673	2,293,701	1,785,173	3,875,828	2,620,937	2,002,765

	Cotton and Rubber Consumption in casings, tubes, solid and cushion tires	
	Cotton Fabric Pounds	Crude Rubber Pounds
Twelve mos. 1925....	168,295,927	552,389,272
1926		
January	13,197,979	44,527,984
February	13,250,686	43,160,777
March	14,197,612	45,497,208
April	13,929,728	43,802,340

* *As of December 31, 1925. Compiled from Rubber Association figures representing 75 per cent of the industry.*

Evolution of the Plantation Rubber Tapping System

How It Is Done in Brazil—Original Tapping Experiences—Early Ceylon Tapping—Wound Response in Hevea—Modern Tapping Systems

THE best introduction is always a story, the writer was once told. And so it is, if it's a good story.

Some time ago a traveler who had ventured through Central America and Brazil visited a New York rubber man. During the interesting conversation that followed this intrepid though casual traveler declared that the native rubber collectors of the Amazon Valley had uncanny powers. "Why, do you believe it, I was told they have the power to converse with the spirit of the rubber tree. They come to the tree, tap it the first day and mutter some incantation. This is an invocation to the Great Djinns of the Jungle to yield a good flow of the precious milk. The next day he taps the same tree and the flow increases tremendously. Such response on the tree's part is marvelous. The trees seem to know they are going to be tapped for their milk and respond intelligently." Our New Yorker received this news with grave doubt. Apparently the traveler had heard of "wound response" in the tapping of Hevea rubber trees and had interpreted it as above.

Wound response, as we shall see, became really the cornerstone in the development of the huge plantation industry. Its recognition enabled planters throughout the Middle East to devise tapping systems and organize their labor forces in a way to ensure daily tapping, increase their annual output, and reduce their overhead costs. Just what the steps were that led up to the present day tapping methods may prove interesting and instructive by indicating the way pioneers have to blaze the trail under difficult circumstances.

Pan American Union

L. E. Elliott

Unscientific Brazilian Tapping Methods Will Eventually Ruin the Forest Heveas

How It Was Done in Brazil

Robert Cross, in 1877, reporting to the Government of India, detailed his observations made in the rubber country of the Amazon. He gave a very faithful account of the methods of the native rubber gatherers. This report had great influence in guiding the men at the head of the Indian governmental gardens and experimental stations in their subsequent experiments with Hevea trees. Referring to methods of collecting rubber, Cross said in substance:

The collector after selecting his trees and cutting paths to them starts in to tap. He uses a small axe with a blade two to three inches long. He first scrapes off the moss and other growths from the surface as high as he can reach, then with the axe in his right hand he strikes in an upward direction. The blow makes a deep, upward sloping gash across the trunk, which always sinks into the wood an inch or more. The cut itself is about an inch in breadth. The cut made, he quickly takes a flat sided clay cup and with a small piece of clay pastes it just beneath the incision. At a distance of four or five inches, but at the same height, he makes a similar incision and pastes another cup as before. And so he proceeds until a circle of cups girdles the tree at a height of about six feet. On the following morning the operation is repeated but at a level of six inches below the first circle of gashes. And so on to the bottom of the trunk. Some tappers make one circle of gashes at six feet and another at the base of the trunk on the first day. Then the next day a second series six or eight inches below and above these, respectively. And so on until the trunk is used up. Others use a system in which the daily gashes encircle the tree at levels of six or eight inches apart and then make incisions in the spaces between until by so doing practically the entire bole of the tree has been drained of its latex.

A different method was reported from the Upper Amazon. Here the loose bark of the tree is scraped off to a height of three feet from the ground. A pith band smoothed with clay is fastened with wooden spikes around the tree near its base, forming a trough. Then gashes are thickly made in the scraped area above so that the latex flows copiously down the surface into the gutter which leads to a leaf cup or calabash. This method is of course very wasteful. The tapping is done in the very early morning and the milk is collected in the forenoon before it coagulates in the cups.

Original Tapping Experiences

From these crude methods to the fine tapping system in vogue at present on rubber plantations in the Far East the progress is enormous. The Amazon collector wounds his tree in a way that would bring heart failure to your visiting agent in the East. Huge excrescences result from the Brazilian's gashing. These look like burrs or cankerous growths and make subsequent tapping impossible or extremely difficult. This would never do on plantations, which must plan to preserve their tapping surfaces.

In Malaya the native wild tribes of Perak obtain a powerful poison from the Ipoh tree and a sort of bird lime from another tree. For this purpose they have always used a sort of tapping system which if invented by them reflects well their innate intelligence. Their method is to cut a long vertical channel down the trunk deep to the wood and then other channels oblique to this first one and leading into it. The effect is like what we call a herring bone design.

In 1897 the Perak State geologist, Mr. L. Wray, described this method and indicated his application of it to the tapping of

the newly introduced Hevea tree. Castilloa, the Panama or Mexican rubber tree, had also been tapped in this way in Central America, but it was not generally known to the Malay planters. It cannot be doubted that this native Malay tapping method suggested the idea of the system as evolved today. The Malay system is entirely different from anything used by the Brazilian *seringueiro* and marks a very important advance which taken in connection with the discovery of wound response, laid the foundation for the subsequent magnificent progress of the plantation industry and the decline of Brazil as the rubber center.

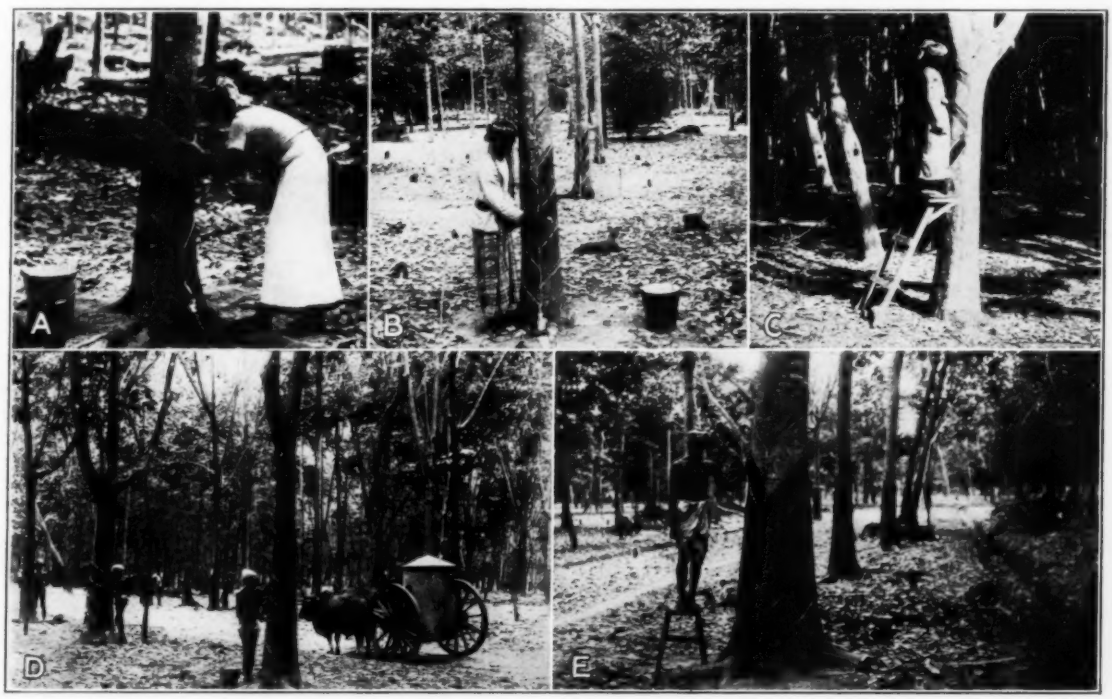
Early Ceylon Tapping

The men who first had to deal with the Hevea tree in Ceylon went about it very cautiously. But they none the less had vision. One of these far-sighted men was Dr. Trimens, who made some very interesting reports on the trees which developed from Wickham's original seeds. One of the first reports deals with Heveas in the Peradeniya Gardens, in the year 1888, twelve years after the first seeds arrived at Kew. The trees were 11 years old when first tapped. Note particularly how Dr. Trimens followed the Brazilian method:

The outer rough bark was scraped, and small incisions were made in the inner layers of the bast. The tree was tapped during three periods of dry weather: 7 days between January 25 and February 15; 6 days between July 20 and August 29, and 4 days between December 6 and 20. The total yield from these three tappings was 17¼ ounces of dry rubber. Trimens observed that the tree seemed none the worse for the operation. The rubber as collected was in tears, thick strings and small sheets.

In 1890 the same tree was tapped in this way. They scraped the outer bark to a height easily reached. Then with a ¾-inch chisel numerous V-shaped cuts were made. At the foot of the trunk clay ridges or gutters were made and cocoanut cups fastened to each gutter. The latex streaming down from the cuts collected in the gutters and flowed into the cups. Most of the milk, it is reported, dried on the trunk in tears. You see how closely the Upper Amazon method was followed by Dr. Trimens. The tree was tapped as before only 17 days during the whole year with three or four months rest in between each tapping period.

A few years later, encouraged by the promise of high profits in rubber production owing to increased demands from the United States, steps were taken by the Indian Government to promote a scientific investigation of the Hevea rubber tree. J. A. Parkin was sent from England as special research worker. His first report issued in June, 1899, as a circular by the Royal Botanic Gardens in Ceylon is a remarkably thorough bit of work. The botanical research into the structure of latex vessels, their position and relation to other structures in the bast gave a scientific basis on which to correlate the practical experience of numerous planters and also suggested the way to work out future tapping systems. Each conclusion was checked by ingenious experiments made in the field. For instance, he went into the matter of slope of tapping cut, yield per single cut, per double cut, yield per single V and double V's; what part of trunk to tap; yield for different levels of trunk and so on. He showed that the surface area of the first 36 inches from the base is the only section worth tapping and that the nearer the base the higher the yield. This confirmed what Wickham had observed years before when he recommended tapping the exposed lateral roots to get a heavier yield. In fact Wickham urged some way to be found to cause the lateral roots to be forced up during growth that they might furnish a fine tapping area. Today hardly any estate taps the trees beyond a 40-inch height from the base.



(A) DOUBLE V ALTERNATE DAY TAPPING SYSTEM. (B) FULL HERRING BONE, ORIGINALLY USED IN TAPPING IPOH TREES. (C) OBSOLETE HIGH TAPPING PRACTICED DURING BOOM PRICE DAYS. (D) HALF HERRING BONE AND (E) FULL HERRING BONE SYSTEMS.

Tapping Hevea Brasiliensis in the Far East

"Wound Response" in Hevea

One year before Parkin's circular the same station in Ceylon issued Circular No. 4. This gave the first reliable observations on "wound response." This wound response feature of Hevea refers

to the fact that the second and third day tapping produces a larger yield of milk than the first day and tapping can be done daily the year round. Experiments were made which proved this point. Though the conditions back of this wound reaction were not fully understood until Parkin's researches and subsequent investigations, it is worthy of note that the discovery of this thing gave Hevea such an enormous advantage over Castilloa that it immediately became the premier plantation rubber tree. Castilloa cannot be tapped daily; it does not yield continuously with each tapping. Thus a chance discovery followed up scientifically helped to give the great impetus to Hevea planting that made British India and Malaya and not Central America the rubber center of the world.

So little was this wound response understood at first that even Sir Hugh Low, Governor of Perak, was misled into believing Hevea was of little value. There is on record a letter dated October 6, 1897, and signed by the Government Curator, R. Derry, at the Taiping Gardens in Perak. Referring to Hevea trees planted by Sir Hugh Low at Kuala Kangsar Mr. Derry writes:

"I notice in the letter from Sir Hugh Low that the trees had previously been tapped by Dyaks unsuccessfully. As you are aware, Pará rubber does not exude for some days after the incisions have been made and Dyaks who are familiar with such rubbers as Ficus, Alstonia, etc., no doubt concluded that as the trees did not run at once when tapped there was no rubber—hence the mistake."

We would like to know just what Sir Hugh's feelings were when the Dyaks told him his precious trees were fake rubber trees. Had he known about wound response he could have made those cock sure Dyaks look sick and amazed. But those Malays lived to see how sadly mistaken they were.

Tapping Systems of Today

Tapping is without question the most important operation on a rubber estate. The capital of the estate lies primarily in the bark of the lower four feet of the trunk. From the drastic tapping to death of boom times when six or more cuts made on half the circumference was the rule, to the one cut alternate day tapping of today, indicates great progress in intelligent appreciation of values.

Today opinion in reliable quarters favors alternate day or periodic tapping on a third or a half the circumference. In periodic tapping the tree is tapped daily for a period and rested for a like period. For example, tapping would be done for a month or three months and then a rest period of equal duration would follow. However, the price of rubber always has a great influence on tapping methods; and the same is true of the labor supply. But all are unanimous that any system of tapping must be so devised as to allow a long enough period of bark renewal. This is essential. In this respect it is good to end with a quotation from the Rubber Commission's report on conditions in the three best rubber areas of Brazil:

"The tapping surface of trees that have been tapped for many years is a mass of burrs and protuberances. The bark is very thin. Most trees have been tapped up to 12 or 15 feet. Many trees have been ruined and destroyed by the system of tapping in use.

"It is probable that at least one-third of all the trees are now in a state of rest and are thus put out of use for periods of from eight to ten years while they recuperate and grow bark thick enough to cut again.

". . . . . The prophecy can be safely made that in the course of a few years, from 30 to 40, there will be few forest Hevea trees left in the Acre Territory, unless the present tapping system is modified."

Progressive Quality Control

In the large footwear mills, that is those units where daily volume is 25,000 pairs or over, control of quality becomes the business of one department, whose function might properly be described as technical service.

This staff comprises a force of technically trained men who operate independently of production and check operations at each successive process. Some of these checkings investigate chemical defects, others merely physical ones. Among the former are: determining that the stock is mixed properly by curing a laboratory sample; examination of stocks after calendering for tack, smoothness and temper. Among the latter are: gage, dimensions, and appearance.

These men are in no sense spies on the production forces, the men who get out the goods. On the contrary they are there for the express purpose of helping them, when defects appear in the process, by chasing down the trouble and eliminating it.

How do the factories who do not fall in the "big" class operate? They have the same problems, only in a minor degree, and yet cannot afford the overhead charge of a separate technical service department. This means that after the preliminary laboratory tests and ordinary mill and calender precautions, quality control is entirely in the hands of the production foremen.

It works out in this way. Inspectors in the packing department grade out the shoes every day according to the classifications "perfects," "seconds," "thirds," and "worthless," determine the cause for the damage if any, and tabulate the results in a report, charging the departments responsible. These shoes are then sent to the head of the department responsible so that he can show the workmen where the faults are.

Accountability for using poor materials is lodged with the making department even if the defect is due to cutting, preparatory work, or even calendering. Thus if the cutting department sends to the making department a soiled lining or an imperfect insole and the maker puts it into a shoe, the making department is charged for the second for using it. In this way the calender department's charge for seconds comprises only those invisible defects which appear after vulcanization such as stock blisters, mixed stock, etc.

Under this system, which might be styled progressive quality control, each foreman acts as a check on the department from which he receives his work. The making department is kept on its toes, its inspectors being very careful to show up poor or doubtful material, and the other sections give their output scrupulous examination as they have learned from experience that poor work will be sent back, and immediate replacement demanded.

Which system works the best? Does the large plant with its huge technical service staff fix process troubles any faster? A proper answer to this very natural question is that each method is exactly suited to the conditions with which it has to cope. The large plant would be hopelessly undermanned and bemired if it depended upon its department heads for quality as well as production control. On the other hand, internal friction and unnecessary overhead expense would result if the small plant attempted the other method. The only thing that can be said from observation of the two is that the small plant is able to correct and work out of stock troubles faster than the large unit on account of its operations being more centralized and naturally coming under the observation and control of a few executives. But if the correctives needed concern machinery and equipment the big mill has the call.

TOGO AND CAMEROON

Export of crude rubber from the French mandatory states Togo and Cameroon were as follows: 52 tons in 1925 against 14 tons in 1924 from Togo, and 754 tons against 968 tons in 1924 from Cameroon.

Baby Balloons That Will Take You Up

The New Sport of Jumping with Small Balloons

By Norman Meadowcroft[1]

How often you have watched the children's toy balloons rise into the air at fairs and carnivals, and with mysterious fascination followed them on their flights as far as the eye could see. The average person naturally considers that a balloon, whether made of rubber or fabric, and whether inflated with air or gas, should go up. That's what balloons are supposed to do, anyhow! However that may be, the writer will endeavor to throw some light on the subject, and explain the physical laws involved.

Articles have appeared recently in several European magazines describing weird and wonderful flights with balloons of impossible size, which, if capable of lifting a man—and that is very unlikely—would probably result in disaster to the pilot. It is true, however, that "Baby Balloons" designed by men experienced in handling large-size, man-lifting balloons, have actually been flown in this country, but the necessary dimensions of these balloons makes them much larger than is commonly supposed.

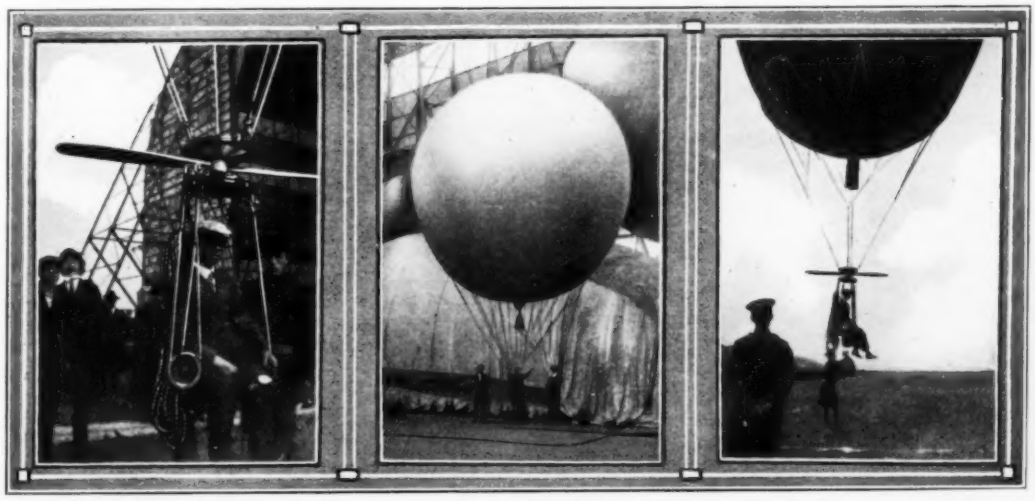
A balloon of any shape or size will not rise unless it displaces a volume of air which weighs more than the balloon itself plus its contained gas, so obviously it must be inflated with some gas lighter than air. Four gases are suitable for this purpose, helium, hydrogen, coal gas, and natural gas. The first is at present unavailable except to the United States Air Services, being a non-inflammable, non-explosive gas used for the inflation of army and navy dirigibles. Hydrogen is the best of the other three, since it is the lightest, and can be obtained compressed in cylinders at comparatively small cost. This is used for inflating the toy balloons sold at fairs and carnivals all over the country. Coal gas or natural gas may be used, but either gives a lifting force of only one half that obtained with hydrogen.

In actual figures, one cubic foot of hydrogen gives a lifting force of about one ounce; one cubic foot of coal gas lifts about six-tenths of an ounce; and natural gas varies in lifting effect between five-tenths and seven-tenths of an ounce per cubic foot. To lift a man weighing 150 pounds, the lifting force of 2,400 cubic feet of hydrogen or 4,000 cubic feet of coal gas is necessary, and the diameters of spherical balloons to contain these quantities are respectively 17 feet and 20 feet. These diameters do not take into consideration the weight of the balloon itself, which of course has to be lifted by the gas in addition to the man.

It will thus be seen that the average man's conception of a balloon, three or four feet in diameter, being suitable for "going up" in, is quite a fallacy, for a balloon around this size made of rubberized fabric would be so heavy that the contained gas would not lift it, and even if made of thin rubber or any other light gas-holding material, its lifting effort would be reckoned only in ounces.

The writer has always had the desire to build the smallest possible practical balloon for use as a sporting adjunct. In 1923, while stationed at the United States Army's large Balloon and Airship Training Station at Scott Field, Illinois, the opportunity occurred to actually carry out his ideas, and two "Baby Balloons" were built with the sanction and cooperation of the Commanding Officer, Colonel John Paegelow, A. S. These were demonstrated at the Scott Field Aerial Exhibition in October, of 1923, but credit should be given to three air service engineers: M. Q. Corbett, C. F. Adams, and W. E. Huffman, who built and flew a small "Jumping Balloon" of a similar nature, during the previous year. Matt Corbett actually jumped over the large airship hangar at Dayton, Ohio, with this balloon.

The Meadowcroft balloons demonstrated at Scott Field had a diameter of 21 feet, giving a volume of a little more than 5,000 cubic feet, which allowed ample margin for weight of the balloon itself and the possibility of having to use impure hydrogen which would not give the lifting force of pure gas. As the simplest possible balloon was desired, no gas release valve was fitted, and the usual balloon net, ending in suspension ropes carrying the basket, was dispensed with. To carry the pilot, a narrow band of fabric was attached to the balloon on a line below the equator,



HAND PROPELLER GEAR BALLOON IN HANGAR BEGINNING OF ASCENSION

Balloon Jumping is a Thrilling Sport and Devoid of Real Danger

[1]President, Meadowcroft Balloon & Airship Co., Inc., Hammondsport, N. Y.

having at its lower edge a continuous rope formed into loops. The actual suspension ropes were spliced through these loops and had at their lower ends another loop to which was attached the "load ring," a wooden loop forming a convenient means of attachment for the seat. Below this wooden ring was suspended the light wicker seat used by the pilot, the complete balloon weighing only 86 pounds.

On one of the two balloons an additional "load ring" was fitted, allowing a light 6 feet propeller to rotate between them. The ends of the suspension ropes from the balloon were fastened to the upper ring, and the seat was suspended from the lower ring. Mounted on one side of the seat was a grooved pulley, over which passed a round endless rope led up over two guide pulleys on the lower ring, thence around the grooved hub of the propeller. Pulling down on one side of the rope caused the propeller to rotate in a direction giving a lifting effort, while pulling on the other side of the rope caused the propeller to exert a downward pull. In this manner, the balloon was made absolutely self-contained, and under the complete control of the pilot without the use of either a gas release valve, or sand ballast. A flight of two and a half hours' duration and up to a height of 840 feet was made in this propeller balloon by the writer at the Scott Field Exhibition above referred to. This balloon weighed, complete with all the propeller gear and rigging, only 99 pounds, and could be packed into a bag no larger than a regular soldier's haversack. The McCook Field balloon flown by Corbett weighed about 175 pounds, having a more elaborate suspension rigging, and a harness for the pilot, instead of a regular seat.

The possibilities of these "Baby Balloons" are many and attractive for one can enjoy great sport, free from real danger, yet with plenty of thrills. If the lift of the balloon is arranged so that it will not quite raise the pilot off the ground, by springing into the air a huge jump can be made, it being possible to go up 100 feet or more, then to be carried along by the wind to make a landing several hundred feet away from the starting point. By choosing a suitable jumping-off place, it is possible to jump over buildings, trees, rivers, and other obstacles, and if one desires to make a prolonged flight, all that is necessary is to make a gradual ascent, instead of a springing start, having the balloon adjusted to give a small lifting force. When sufficient altitude has been reached, operating the propeller, or releasing a little gas through the valve, if one is fitted, starts the balloon downward again. In order to reduce the shock of landing, in the event of an error of judgment in the releasing of too much gas or causing the propeller down-pull to be excessive, it is a wise precaution to have a sand trough on the side of the seat. A few handfuls of sand thrown overboard at the correct time will place the balloon in equilibrium and enable a safe landing to be made.

One can foresee the inauguration of sporting events for "Baby Balloons" where prizes will be given for the longest jump, the highest jump, the longest cross-country trip, etc. Balloons of this type, if made of the proper materials, will hold gas for several months, can be stored in an ordinary large barn, and if not used in very windy weather, will give many weeks of thrilling sport.

SCANDINAVIAN IMPORTS OF AMERICAN TIRES INCREASE

During the past three years the combined imports of American tires by Denmark, Norway, and Sweden have been as follows: 1923, $1,780,521; 1924, $1,824,212; and 1925, $2,554,472. Purchases of these goods by Denmark and Sweden represent a steady increase, while Norwegian imports show a slight decline.

DURING THE PAST YEAR THE UNITED KINGDOM EASILY OUTdistanced other countries in imports of American-made rubber boots and shoes, taking 516,945 pairs of boots, value $1,045,573; and 220,457 pairs of shoes, value $158,815. Other good markets were Denmark, Germany, Norway, Sweden, Newfoundland and Labrador.

Interesting Letters from Our Readers

Reclaiming Industry Awaits Second Goodyear

TO THE EDITOR:

DEAR SIR: The determination of American rubber manufacturers to free themselves from dependence upon foreign controlled and other overseas sources of crude rubber supplies has renewed industrial interest in synthetic rubber. Tests and research on this subject are reported in progress at the Bureau of Standards and at the Massachusetts Institute of Technology. At the latter institution it has been said that practical success within three years is dependent chiefly upon ample financial support.

It would seem that an even more practical source of rubber is at hand in the constantly increasing tonnage of used tires and other rubber scrap. It is estimated that in the United States there is enough rubber scrap available to yield 1,000,000 tons of uncompounded rubber. This amount is nearly three years' crude rubber supply at the current rate of use. If all this rubber could be recovered and returned to the industry again in its original quality, free of combined sulphur and compounding ingredients, it would make the country, in peace or war, virtually independent of government controlled crude rubber.

No new method for rubber reclaiming has been introduced in the rubber industry since 1898. Our present processes are not capable of recovering the original gum in its native quality. The situation calls for a process that will do so. Here is a problem the solution of which offers commercial possibilities far exceeding those to be hoped for from synthetic rubber. It awaits the study of a second Goodyear backed by ample financial support.

H. MUEHLSTEIN & CO.

NEW YORK, N. Y., June 9, 1926.

Rubber Nipples Not Abolished in France

TO THE EDITOR:

DEAR SIR: Regarding the article in your May number entitled "Rubber Nipples Abolished in France," let us say that you have been misled. It is the *sucette* that has been banned, not the *tétine*. The latter is intimate part of the milk bottle and any person of sense, at least in this country, will realize that it would be most difficult for mothers and nurses to feed babies without it.

Much to the contrary, the *sucette* (from the verb *sucer:* to suck) is simply a gum-elastic tip with, in place of a milk bottle, a lump of sugar or anything of that kind. It is used by the poorer class, or among the country-folk, and its sole object is to keep babies quiet. Of course, if the taste of sugar makes them speechless, the endless sucking is bound to cause diseases, such as consumption, hence the reason why the *tétine* is to remain and the *sucette* to die.

It is not our intention to discuss here whether it is up to our Chamber of Deputies to stop the fall of the franc or not, neither if babies are brought up in a better way on either side of the Atlantic Ocean. What we want to point out is that we consider as contraband any unfair criticism and that any foreign problem, even of little importance, is bound to create unnecessary feeling if it is not always most accurately and carefully dealt with.

The old French saying remains true *La paille et la poutre.*

BERJONNEAU, JACQUEAU & CIE.

CAUDEBEC-LES-ELBEUF,
FRANCE, June 10, 1926.

AMERICAN TIRE EXPORTS TO THE UNITED KINGDOM DURING April included 14,967 casings, value $287,599; 12,356 inner tubes, value $26,813; and 1,571 solid tires, value $54,523. These compare with figures for April, 1925, of 13,096 casings, value $145,737; 3,250 solid tires, value $74,244; while values of inner tubes were estimated at $13,086.

Motorcoach Balloon Tires

The Development and Adoption of Low Pressure Motorbus Tires Are Assured Facts

By S. P. Thacher[1]

WITH the use of the so-called balloon tire recognized as standard practice by all automobile manufacturers, the extension of this development into other fields was to be expected. After the passenger car, the next vehicle to take advantage of the superior characteristics of the low pressure tire was the motorcycle. Here it was also a distinct success, unless we except the difficulty of mounting caused by the necessarily extra stiffness of the clincher beads. This feature, of course, has no bearing on the riding characteristics, and will be overcome in one of a number of ways.

The field where there is the most crying need for lower tire inflations and correspondingly increased cushioning is that of the bus. This modern transportation development has produced city and interurban vehicles which are successfully competing with electric and steam lines, but which until a few months ago were limited to large high pressure pneumatic tires. This type of tire has been perfected to the point where it can be used economically and where its performance is very dependable, but it is open to the same criticism as the smaller high pressure tire for passenger cars—it is a shock transmitter and not a shock absorber and, therefore, it must eventually be replaced by a larger section, thinner and more flexible casing which can carry the same load at half the inflation, or less.

It is entirely reasonable for bus passengers to expect the same degree of riding comfort as automobile passengers. It must also be borne in mind that a very large number of owners of balloon-equipped automobiles ride in buses and that they naturally compare riding qualities. Also, the relative importance of springs and tires differs as between automobiles and buses with respect to riding qualities. In an automobile we have, for example, a maximum passenger capacity of five people, while in a bus we carry 30 passengers. The five-passenger car is sprung to ride as well with one person as with five, and this it does very well, but as between one passenger and 30 in a bus, it is obvious that the spring suspension problem is quite different and cushioning below the springs is probably the quickest solution. The best of modern buses, even when fully loaded, do not ride as comfortably as an automobile and the "feel of the road" is undeniably plain.

Therefore, the low pressure tire is now being tested on the modern motorcoach and has met with unqualified approval on the part of the riding public. Due to the necessity for dual rear tire equipment it is not practical in many cases to change over old buses from high pressure to balloon tires, so that almost all tests have been made on new vehicles with bodies, rear axles and wheels specially designed for the purpose.

In tracing the development of the balloon tire for buses it is necessary to outline briefly the various phases through which the high pressure tire has passed in reaching its present stage. The first truck pneumatics of cord construction were based on a 24-inch rim diameter and ranged in nominal sectional width from 5 inches to 12 inches. The reason for the sizes above 8-inch was found to be in our prejudice against the use of dual rear equipment which, while fairly satisfactory in Europe, was felt to be fundamentally wrong, and it was believed that large single tires could be satisfactorily developed for use on rear wheels. The line of sizes included 34 by 5, 36 by 6, 38 by 7, 40 by 8, 42 by 9, 44 by 10 and 48 by 12. As the development of these sizes proceeded it soon became evident that the larger sizes were not and probably could not be made satisfactorily, and today it is the general opinion that sizes above 8-inch are not economical, although for certain special types of service 9- and 10-inch tires have to be used.

For general trucking it was found that the larger sizes of tire created too great a body height and consideration was given to the development of a line of pneumatic tires having the same sectional width as the 24-inch rim diameter sizes but based on a smaller rim diameter. For this purpose a 20-inch rim diameter was selected and a line of tires from 5 to 10-inch was brought out. The sizes were 30 by 5, 32 by 6, 34 by 7, 36 by 8, 38 by 9 and 40 by 10.

With the coming of the modern motorcoach, the use of these smaller diameter tires was very advantageous because it permitted the designing of the job with a lower floor level. The rapid development and expansion of bus transportation has focused the attention of tire engineers during the past year or two and has also served to bring about a practical commercial test of the relative merits of the 24- and 20-inch rim in diameter line of high pressure tires. It has also shown that dual rear tire equipment is practical. The results of experience indicate that while the 20-inch rim diameter line of tires gives certain advantages to the bus designer and costs less than the larger tire, it has the disadvantages of giving less mileage and of being subject to failure through the transference of heat from the brake drum to the rim under certain conditions. Where the problem of brake drum heat does not enter in it has been found that the relative mileage of the 20-inch against the 24-inch diameter tire is somewhat less than would be expected from the difference in rolling circumference of the two tires. Where conditions are such that brake drum heat enters into the problem, the casing and tube fail prematurely.

There is a minimum diameter of brake drum below which it is impractical to go because a smaller diameter drum, in order to give equal braking efficiency, would have to be made of too great width. This minimum diameter brings the brake drum so near to the 20-inch diameter rim that without some special form of ventilation, heat transference to the inside rim of dual rear equipment cannot be prevented, and under certain conditions of service, temperatures are developed which quickly ruin the beads of the casing, the flap and the inner tube.

One tire manufacturer in an effort to solve this problem has proposed a line of tires based on a 21-inch rim diameter. Another manufacturer believes that a 22-inch line would be preferable. The idea in both cases is to increase the space between rim and brake drum and thus minimize heat transference into beads, flap, and tube. On the other hand, there is the possibility that if larger rim diameter tires are developed, wheel and vehicle manufacturers will take advantage of the larger diameter rim to increase the braking efficiency by a proportionate increase in the diameter of the brake drum. There are, however, so many advantages from the bus engineer's standpoint in using a 20-inch rim diameter tire that the writer believes the tire industry will be able to improve tires and tubes to resist brake drum heat and that wheel manufacturers will find a way to minimize this condition to the point where it will no longer endanger the tire.

With these problems before us we are now carrying on the development of the balloon tire for buses. Obviously the same relative sizes of balloon and high pressure tires must be maintained in the bus field as were maintained in the passenger car

[1] Manager, Tire Division, Technical Service Department, United States Rubber Co., New York, N. Y.

field. This means that the overall diameter must not be any greater than is absolutely necessary and that increase in sectional width must be obtained by decreasing the rim diameter of the tire. The first motorcoach balloons were developed on a 20-inch rim diameter and designed to fit the standard truck rims. Sizes were 32 by 6.75, 34 by 7.50, 36 by 8.25 and 38 by 9.00. The 6.75 and 7.50 sections are of 6-ply construction, while the two larger sections carry 8 plies. This development has now proceeded far enough for the tire industry to establish tentative load and inflation standards and, through the Tire & Rim Association of America, the following table has been proposed:

Inflation Pressure Pounds	Sectional Sizes and Loads			
	6.75 Pounds	7.50 Pounds	8.25 Pounds	9.00 Pounds
40	1,500	1,875	2,225	2,700
45	1,700	2,100	2,500	3,000

On putting these tires into service it was found that brake drum heat was again an important problem, so that experiments are now being made with motorcoach balloons of 21-and 22-inch rim diameters in the above sections. Such tires are of greater overall diameter than is desirable, and it is to be hoped that their adoption will not become necessary.

The use of the low pressure tire inflated to 40 or 45 pounds in place of the high pressure tire inflated to from 90 to 100 pounds gives to the bus the following advantages:

1. Almost perfect shock absorption resulting in: (a) greater comfort and less fatigue for passengers; (b) less vibration; (c) fewer mechanical adjustments to chassis and body; (d) elimination of squeaks and rattles; (e) increased life of vehicle; (f) greater average speed over poor roads.
2. Improved non-skid qualities.
3. Increased tractive and braking efficiency.
4. Lower unsprung weight resulting in improved "roadability."
5. Reduced wear and tear on roads.
6. Mileage at least equal to that of high pressure tires.

These are, of course, the same advantages as were given to the passenger car by balloon tires, and further advantages will accrue to the bus when the bus engineer takes into account all the characteristics of balloon tires.

The layman is prone to regard the balloon tire as something entirely different from the high pressure tires of two years ago—as a marvelous invention and a performer of miracles. He is hardly to be blamed for this opinion after reading advertisements showing the tire undergoing all forms of abuse and emerging apparently without injury. The facts are that the balloon tire is in no sense an invention. Nor is it a cure-all for tire troubles. It is merely the tire industry's logical solution of the problem presented by the motorists' insistence on operating high pressure tires at low pressures to gain increased riding comfort.

The development and adoption of low pressure tires for the motorbus are assured facts. In the final analysis the decision on all questions is made by the public. With respect to buses, the public demands the safest, most comfortable and least interrupted ride possible. And this spells "Balloon Tire."

CANADIAN TIRE AND TUBE EXPORTS

Canadian exports during the year 1925 of pneumatic casings totaled, according to the Department of Commerce, 912,265, value $9,731,121, as against corresponding exports for 1924 of 537,340 casings, value $5,416,377. Pneumatic tubes to the number of 587,948, value $849,182, were exported in the year 1924, while 1,011,865 tubes, value $1,695,795, were shipped in 1925. Exports in 1925 of solid tires numbered however only 10,210, a figure slightly lower than that of the year previous. The two leading customers for these goods were the United Kingdom and New Zealand, other important markets being Argentina, British South Africa, British India, Australia, and France.

Mottled Rubber Tiling

By Allan Williams

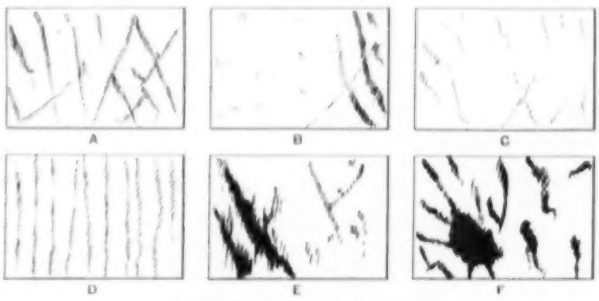
The beauty of rubber flooring will be greatly impaired if the mottling is not moderately done. The mottling can be too heavy as well as too light, therefore, a happy medium should be aimed at in the making. A great deal depends on the plastic state of the rubber at the time of intermingling and this must be watched very carefully by the man in charge of the work.

The accompanying illustrations will give an idea of the different mottlings of tile now in common use.

A is a tiling which could be called as nearly perfect as possible, being well intermingled for a mottling effect of two colors that are well balanced.

B is a tile which is mottled on one side but very faint on the other side of the surface. The mottling of this tile must have been to the outside of the batch on the rollers, thus not getting the proper intermingling on one side.

C. This tile has been mixed on the rollers too much, the mottling color disappearing into the field color, and therefore a weak mottling effect is the result. Sometimes when the mottling is carried on too far the color will disappear entirely, as for instance the white color in a tile that is black and is to be mottled with white color.



Different Types of Mottled Tiling

D. If the mottling is too uniform, the tile looks artificial, appearing more like a Jaspe design in linoleum flooring, than a good imitation of marble floors which rubber is supposed to represent.

E is a tiling which is poorly handled in the making, causing large uneven mottling made by heavy pieces of rubber strips put on the rolls after the doughy mass has been mixed too long and then trying to get a better mottling effect.

F. This has everything but beauty, the mottling being coarse and heavy, with poorly mingled large blots here and there, sometimes getting the opposite color to the field, the mottling color being too prominent. This is caused by not mixing the compounds satisfactorily, the heat or plastic state not being homogeneous so that the blending would take properly.

Mottling is not by any means new as this has been practiced for years in the rubber industry for all sorts of articles, but only in the later years has rubber flooring been mottled. Previous to this the colors were plain, or of the interlocking type of flooring.

Two-colored tile has been the most popular; three colors, also known as various mixtures, such as verde antique, red, white and black, etc., are also used. Four colors have been tried but have not proven satisfactory and do not show up well on the floor. Some concerns manufacture as high as fifteen various colors and keep a standard list of eight popular shades included in that number which are always kept in stock for immediate shipment orders.

What the Rubber Chemists Are Doing

Physical Properties of Rubber—I.

Influence of High Temperature on the Stress-Strain Curve of Vulcanized Rubber[1]

By A. Van Rossem and H. Van Der Meijden

THE study of the physical properties of rubber at elevated temperatures is highly important, from a theoretical as well as from a practical standpoint. For an elucidation of the hot vulcanization process a thorough knowledge of the properties of the rubber at the temperature of vulcanization will be a necessity.

There are certain indications that physical properties at high temperature are quite different from those of the same rubber at the ordinary temperature.

Structure theories of vulcanized rubber will be greatly influenced by our knowledge of the properties of vulcanized rubber at high temperatures.

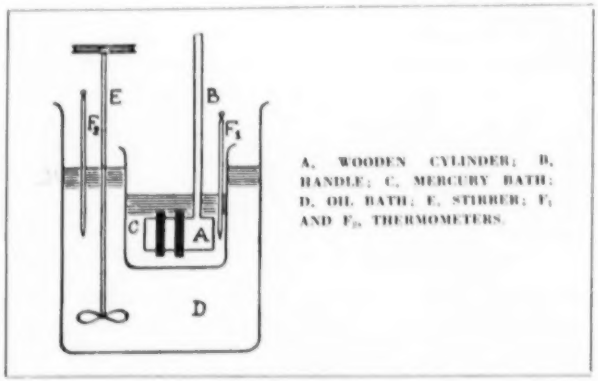
The study of this subject, however, is also of technical importance. During use, various rubber articles, such as automobile tires, steam hose, hot water bottles, etc., are exposed to high temperatures.

This first part of our study deals only with the influence of temperatures up to 147 degrees C. on the stress-strain curve of simple rubber-sulphur mixes.

The technique used in our tensile experiments at high temperatures is a very simple one, and though it does not allow us to keep the temperature absolutely constant during the test, it affords sufficient insight into the phenomena at high temperatures to justify the method. The tensile tests at high temperatures were carried out with rings on the ordinary dynamometer of Schopper. The pulleys supporting the rings were heated in a Hearson's electric oven at the temperature required for the experiment and quickly mounted on the dynamometer, for which procedure 30 seconds are sufficient. Subsequently the ring, which is also heated at the temperature of the experiment, is quickly mounted on the pulleys (which takes about 5 seconds) and the tensile test is immediately started.

Ring Heating Apparatus

The accompanying illustration shows details of a mercury bath chosen as the appropriate way of heating the rings. The rings (inner diameter 44.6 mm.) are mounted on a wooden cylinder, A (diameter 40 mm.), fixed with handle, B, at least 1 cm. under the surface of the mercury bath C. Up to 100 degrees C. the mercury bath is heated in a Hearson's drying oven; for higher temperatures an oil bath, D, is used. Deviations of temperature were less than ±0.5 degrees C. Preliminary tests showed that the minimum time necessary for heating the rings to the desired temperature was 1 minute.



A, WOODEN CYLINDER; B, HANDLE; C, MERCURY BATH; D, OIL BATH; E, STIRRER; F_1 AND F_2, THERMOMETERS.

Heating the Rings in a Mercury Bath

Preliminary experiments showed that when studying tensile properties of vulcanized rubber at high temperatures three principal factors must be considered: (a) the degree of vulcanization; (b) the temperature at which rings are heated and tested; (c) the time during which the rings are heated.

The principal purpose of a systematic study of the phenomena should therefore be concentrated on the influence of each of these factors.

When rings are tested at increased temperature the stress-strain curve is shifted towards the elongation axis. The higher the temperature of heating the greater is the shifting of the curve towards this axis. This phenomenon was specially noticed with rings of a vulcanization coefficient of 2.1, but occurs also at other vulcanization coefficients.

When testing the rings at high temperatures the elongation at break is increased and for a low vulcanization coefficient of 2.1 to such a degree that with rings of ordinary size the dynamometer of Schopper is in its lowest position before the rings break. For rings with a vulcanization coefficient 2.1 the position of the end-points of the curves at various temperatures is therefore still obscure from the foregoing tables.

Apart from this shifting, remarkable brittleness at elevated temperatures is obvious from the figures and curves. The time of heating necessary to cause brittleness decreases quickly with increasing temperature and vulcanization coefficient. Rings with vulcanization coefficient of 4.2 are brittle after heating for 1 minute, even at 70 degrees C.

Rings which had become brittle through heating were tested after being cooled to room temperature during 1 hour. The results indicate that this brittleness is not lasting, since after the cooling the rings recovered their normal tensile properties and showed stress-strain curves practically coincident with the original (blank) ones.

Progressive Change in Tensile Properties During Vulcanization

At first sight brittleness might be attributed to over-vulcanization due to prolonged heating. This is not likely to be the cause, as a heating of rings during 5 minutes at 130 degrees C. cannot account wholly for the degree of brittleness observed. Results of a few determinations of combined sulphur in rings before and after heating at 100 degrees C. and 130 degrees C., tabulated below show clearly that there is no increase of combined sulphur and therefore brittleness on heating cannot be attributed to over-vulcanization.

TREATMENT	Combined sulphur Per Cent
Blank (not heated)	3.0
1 hr. at 100° (not yet brittle)	3.1
2 hrs. at 100° (brittle)	3.0
4 hrs. at 100° (brittle)	3.1
15 min. at 130° (brittle)	3.1
15 min. at 130° and subsequently cooled (not brittle)	3.2

Oxidation cannot be the cause of brittleness in the experiments at high temperature, since heating is carried out under mercury, with exclusion of air. The recovery of the original tensile properties after cooling is also evidence in the same direction.

[1] Communication of the Netherland Government Rubber Institute, Delft, Holland, condensed from the *Journal of the Society of Chemical Industry*, March 26, 1926. 6T-72T.

Therefore the changes in tensile properties at high temperatures are caused by the direct influence of heat, and this leads to the conclusion that the tensile properties of rubber during vulcanization must be entirely different from those which are determined after cooling to the ordinary temperature.

Conclusions

The tensile properties of rubber during vulcanization are entirely different from those at normal temperature, tensile strength being very small over the whole range of cure. At a low time of cure the elongation is very high; at progressive cure the rubber shows at the temperature of vulcanization increasing brittleness.

Vulcanized rubber, when left at room temperature for 24 hours, and heated for 2 minutes at 147 degrees, shows practically the same tensile properties as rubber tested immediately at 147 degrees after the same time of cure. This furnishes additional proof that oxidation through contact with air cannot be the cause of the brittleness observed.

It is our intention to continue the experimental study of the physical properties of vulcanized rubber along the following lines.

1. From a few preliminary observations on the sub-permanent set of vulcanized rubber at high temperatures it seems likely that vulcanized rubber at high temperatures will show a certain amount of plasticity, and we consider it probable that the phenomena here described stand in a certain relation to this property. It is therefore our intention next to study the plasticity of vulcanized rubber at high temperature by determination of the sub-permanent set and by direct measurement.

There are still two other directions in which we propose to extend this work in the near future:

2. Until now we have studied the changes in tensile properties at increasing temperature of rubber-sulphur mixes, but we intend to continue this experimental work with vulcanized mixes containing compounding ingredients.

3. As it has been shown that the phenomenon of brittleness at higher temperatures is highly dependent on the coefficient of vulcanization, the testing of vulcanized rubber at high temperature suggests itself as a method of carrying out aging experiments. It will, however, be necessary to collect data of mixes with compounding ingredients and technical mixes before an aging test can be worked out.

Effects of Accelerated Aging Upon Some Physical Properties of Hard Rubber Compounds[1]

By E. O. Dietrich and Harold Gray, The B. F. Goodrich Co., Akron, Ohio

When hard rubber is used as a structural material, and mechanical strength is important, it is desirable to know what may be expected of this material from the point of view of permanence of physical characteristics. Furthermore, a comprehensive study of the changes induced in hard rubber by the agency of heat, for example, may lead to information of value in the formulation of a satisfactory conception of vulcanization. The data given in this paper, although necessarily incomplete, present some new information and indicate a method for future study.

In the case of soft rubber compounds the stress-strain curve has been found of immense value in following the changes which occur on aging. Obviously, the same criterion cannot so easily be applied in the study of hard rubber, since here we are generally dealing with much smaller elongations and relatively high stresses. Both factors contribute to a decrease in the accuracy of measurement. Moreover, the time factor involved in the preparation and testing of samples and the uncertain interpretation of the results make this method of doubtful value.

We have the choice of about a dozen different physical characteristics, mechanical, thermal, and electrical—all of which have been more or less thoroughly investigated in relation to this question. Of these, three show most promise of yielding intelligible data—namely, impact strength, transverse strength, and softening temperature.

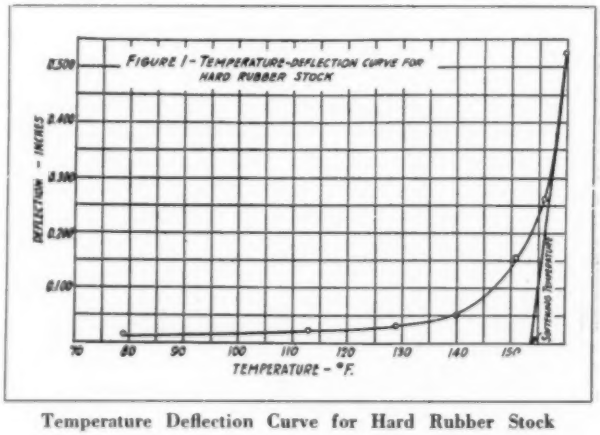
Methods of Testing

Impact Strength. The samples are rectangular bars 3 inches by ½ inch by 3/16 to ¼ inch, generally milled to size from the cured sheet. The test pieces, after cooling in cracked ice to 32 degrees F. for at least one hour, are mounted on supports 2½ inches apart in an impact testing machine of the pendulum type, with the smallest dimension in the direction of travel of the pendulum. The pendulum carries a rounded knife edge on its striking face and is arranged to deliver the impact to the sample midway between the supports. From the difference in the energy of the pendulum on release and that after impact, the impact strength of the compound, expressed in work units per unit area of cross section, is computed. Each result is the mean of three tests.

Transverse Strength. The test pieces are of the same dimensions as for the preceding test. The sample is mounted as a simple beam on knife edges 2 inches apart, and loaded by a calibrated spring attached to a third knife edge midway between the supports. From the breaking load the transverse strength is calculated by the formula for the rupture of a simple beam. Three tests are made for each value given in the tables.

Softening Temperature. The test piece, also of the same dimensions as the preceding one, is mounted as a simple beam on knife edges 2 inches apart, and loaded at the center with a dead load attached to a third knife edge, the apparatus being inclosed in an electric oven. The temperature is raised uniformly at the rate of about 2 degrees F. per minute, and deflections of the center are read at intervals, by means of a reading telescope, until excessive deflection has taken place.

A temperature-deflection curve is then plotted which consists of three distinct portions: (1) a nearly linear region, (2) a portion in which the deflection increases more rapidly than the temperature, and (3) a second linear region in which excessive flow takes place. The softening temperature is determined from this curve in a purely arbitrary manner. The tangent to the curve in the region of excessive flow is drawn, and the intersection of the tangent with the temperature axis is taken as the softening temperature.



Temperature Deflection Curve for Hard Rubber Stock

The ordinate at this point intersects the temperature-deflection curve in the region in which excessive flow commences. The load

[1] Presented before the joint meeting of the Division of Rubber Chemistry and the Akron Section of the American Chemical Society, Akron, Ohio, February 22 and 23, 1926.

on the test piece is adjusted to give a maximum fiber stress of 2,500 pounds per square inch. This is extremely high, but allows the determination of the softening temperature in a reasonably short time. It is important that the thickness of the samples be kept within rather narrow limits on account of the dependence of the rate of rise of temperature within the test piece on the cross-sectional area.

Aging. The samples are subjected to accelerated aging at 158 degrees F. in the Geer oven, and at 300 degrees F. in a well-ventilated electric oven. At 158 degrees F. aging is continued for 7 and 14 days. At 300 degrees F. the procedure consists in heating the samples for 5 hours on successive days, allowing them to cool for the remainder of the 24 hours, until a maximum of 60 hours has been reached.

Results

From the results obtained to date, hard rubber may be considered relatively permanent in its physical properties at room temperature, as the indications are that it will be years before definite changes are detectable. At elevated temperatures, however, conditions are different. Up to 14 days the effect at 158 degrees F. is, in general, to raise the softening temperature and the transverse strength while the impact strength decreases; that is, the stocks become stiffer but more brittle. At 300 degrees F. the effect is much more marked, and deterioration in all three of these characteristics sets in rapidly.

Compounds receiving the optimum cure are less affected than undercured compounds. The effect of accelerators and age retarders on the aging curve is not marked, so far as this investigation goes. The percentage change in heavily loaded stocks is less than in pure rubber-sulphur compounds. The effect of aging is not an overcure, as the percentage of free sulphur remains constant.

Chemical Patents

The United States

1,583,812. VULCANIZING RUBBER SOLES AND HEELS TO LEATHER SHOES. Vulcanizable rubber soles are attached to the leather bottom of the shoe with a cement consisting of rubber, carbon tetrachloride and trichlorethylene. The heat and pressure from the wearer's foot permanently vulcanizes the rubber sole to the shoe.—Robert Surridge, Jr., London, England.

1,586,045. PLASTIC COMPOSITION. The formula given is: Powdered magnesite, calcined, 42 pounds; a natural product of a weathered silicious and calcareous rock with vegetable matter intermixed, 33⅓ pounds; powdered silica, 5 pounds; ochre, 5 pounds; calcite, 5 pounds; wood sawdust, 6 pounds; powdered rubber, 5 pounds; and 2 gallons of 20 per cent solution of chloride of magnesium.—Zenos P. Romerill, Ogden, Utah.

1,586,121. ACCELERATOR. The carbon bisulphide derivative of the reaction product of a secondary amine and an aldehyde.—Winfield Scott, assignor to The Rubber Service Laboratories Co., both of Akron, Ohio.

1,587,408. REMOVING SULPHUR FROM VULCANIZED RUBBER. This process for the treatment of material containing vulcanized rubber consists of distilling the material through a substance having a stronger affinity for sulphur than the rubber of the material.—Leland L. Odom, assignor of one-third to E. M. Ellis, both of Memphis, Tennessee, and one-third to J. D. Reynolds, Camden, Arkansas.

1,587,486. METHOD OF PRODUCING SPONGE RUBBER ARTICLES. A plastic material is made by thoroughly mixing with crude rubber, stearic acid, sulphur, litharge, oxide of zinc and a petroleum product. The mixture is rolled into sheets and heated until porous. It is then worked at a lower temperature on rolls, gradually increasing the heat during working and tubed to size. The tubed material is next molded and vulcanized in expanded shape.—Thomas P. D. Marshall, assignor of one-half to Joshua Hirst, both of Wingham, Canada.

The Dominion of Canada

260,571. SOLES. Leather soles are impregnated with a rubber solution under heat and vacuum, and subsequently vulcanized by the action of a 2 per cent solution of sulphur monochloride. The soles are finished by washing and drying.—Alfred I. Duprey, Eureka, California.

260,579. RUBBER COMPOSITION. The formula comprises coarse Pará rubber, 60; first latex rubber, 15; mineral rubber, 20; rubber solution, 4¼; sulphur flour, ¾.—George W. Gish, Collingwood, New Jersey.

260,604. WATERPROOF SHEET. A felted fibrous material containing cotton stalk constituents, a coalesced rubber compound extending through the sheet and containing a colloid.—Lester Kirschbraum, Chicago, Illinois.

260,824. TABLET BINDER. A suitable rubber and glue composition is made by milling the rubber at blood heat, and dusting in the required amount of powdered glue in small amounts during the milling.—Ward L. Harris, Salina, Kansas.

260,911. RUBBER PREPARATION. This process of treating rubber hydro-carbon consists in incorporating with rubber latex a preservative and vulcanization accelerator comprising an alkali metal phosphate giving an alkaline reaction with phenolphthalein in aqueous solution.—The Canadian Consolidated Rubber Co., Ltd., Montreal, assignee of O. H. Smith, New York, N. Y., U. S. A.

260,912. RUBBER AND PAPER COMBINATION. This is a process of paper making in which are combined ammonia treated pulp and a quantity of alkali preserved latex. The mass is rendered acid to coagulate and agglomerate it. Next it is further mixed and coagulated before being made into sheets.—The Canadian Consolidated Rubber Co., Ltd., Montreal, assignee of Ernest Hopkinson, New York, and Reed P. Rose, Jackson Heights, Long Island, both in New York, U. S. A.

261,073. IMITATION LEATHER PROCESS. A fabric is impregnated with a composition consisting of a rubber solution and talc or other oxides capable of fine sliming. The impregnated textile is treated with alcohol, subjected to pressure and finished by polishing its surface.—H. F. V. Meurling, Montreal.

261,235, 261,236 and 261,237. PRODUCTION OF STYROL.—Canadian Consolidated Rubber Co., Ltd., Montreal, Canada, assignee of Iwan Ostromislensky and Morris G. Shephard, both of New York, N. Y., U. S. A.

261,267. WATERPROOF PASTE. A strengthening and waterproof cement is made after the following formula. Twenty drachms latex; 3 drachms hexamine; 8 drachms silicate of soda; 5 drachms gum arabic; 1½ ounces, avoirdupois, potash soap, and 3 fluid ounces water.—Samuel McMurray Kirkpatrick, Glasgow, Scotland.

261,268. RUBBER COMPOSITION. The manufacturing process consists in mixing latex with a solution of sulphur and gradually adding aluminous cement while mixing and continuing the mixing until the mass becomes a semi-fluid paste.—Samuel McMurray Kirkpatrick, Glasgow, Scotland.

The United Kingdom

249,065. RUBBER COMPOSITIONS. Rubber latex or artifical rubber dispersions are added to a batch of rubber or composition to facilitate milling, mixing, etc. The quantity of rubber thus added usually is from 2 to 3 per cent, and is allowed for in the batch. The addition of latex improves the plasticity, reduces shrinkage of stocks on cooling, and reduces the temperature of working.—Morgan & Wright, assignees of E. E. A. G. Meyer, 863 Iroquois avenue, both of Detroit, Michigan, U. S. A.

249,113. ACCELERATOR. Aldehyde-amine condensation products act as accelerators of vulcanization. They are obtained by causing one molecular proportion of an amino body to react with 2 or more, up to 20, molecular proportions of an aldehyde under conditions whereby water is eliminated.—Grasselli Chemical Co., Cleveland, Ohio, assignees of I. Williams, and W. B. Burnett, Mellon Institute, Pittsburgh, Pennsylvania, both in U. S. A.

249,151. ELECTRIC CABLES. Raw or vulcanizable compounded rubber is applied to the conductor or cable in a tubing machine from which it is led directly to a sheathing machine to receive a casing of one or more layers of a rubber composition.—A. Ullrich, 18 Agidigasse, Vienna, Austria.

249,172. ISOMERS OF RUBBER. As an example of the preparation of an elastic product by this invention, rubber is mixed with 4 to 5 per cent of its weight of pará-toluene sulphonic acid and is heated to 120 degrees C. for 20 to 40 hours. To obtain a balata-like product, 100 parts of rubber and 10 parts of pará-toluene sulphonic acid are heated for 48 hours at 110 degrees C., followed by 48 hours at 120 degrees C. The shellac-like product may be obtained by thoroughly mixing 100 parts of rubber, 8 parts of pará-toluene sulphonic acid, 2 parts of sulphuric acid, and 2 parts of water and heating the mixture for 8 hours to 140 degrees C., whereupon an exothermic reaction commences and raises the temperature to 220 degrees C. Following this the mass is allowed to cool. A. E. White, 88 Chancery Lane, London. (The B. F. Goodrich Co., New York, N. Y., U. S. A.).

249,202. FILTERING LIQUIDS OR GASES. Edge filters are formed of sheets of paper treated with nitrocellulose, acetylcellulose, rubber, chlorinated rubber, celluloid, casein, cellulose esters; natural or synthetic resin, paraffin, hardened gelatine, asphaltum or formaldehyde condensation products. The edges only of the sheets may be treated, and the treatment may be effected after the sheets have been arranged in packs or piles.—H. E. Hele-Shaw, 64 Victoria street, Westminster, and J. A. Pickard, 21 Rosemont Road, Acton, London.

249,816. CHEWING GUM. Tablets of chewing gum made from a mixture of chicle, chicle substitute, glucose, sugar, and cuttings from a previous batch of chewing gum are coated with a layer of sugar containing yellow phenolphthalein to act as a laxative.—Health Products Co., 1170 Broadway, New York, N. Y., assignees of A. H. Court, Belleville, New Jersey, both in U. S. A.

Germany

428,687 (September 24, 1921). Method of making colored rubber goods. (addition to patent No. 427,873). I. G. Farben-industrie, A.-G., Frankfurt-am-Main.

429,770 (September 9, 1922). Method of making a substance simulating hard rubber. Heinrich Frerichs, Gr. Burstah 11-17, Hamburg.

ANALYSIS OF GOLDEN SULPHIDE OF ANTIMONY

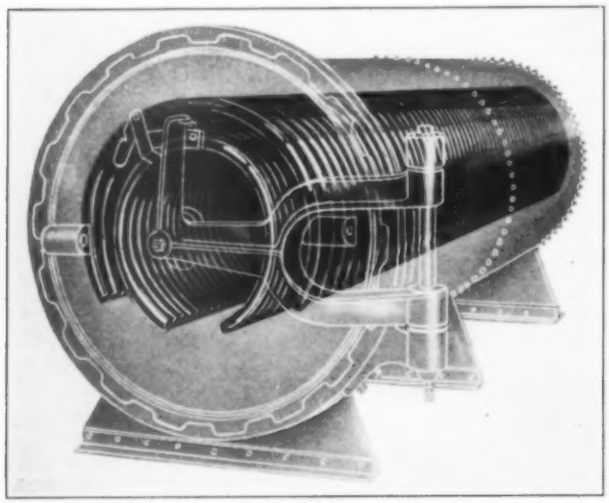
Golden sulphide of antimony often contains a higher sulphide than the trisulphide. This is probably the pentasulphide in at least some cases, although tetrasulphide may also be present. After heating in an evacuated tube antimony sulphide from which soluble sulphur has been removed by extraction with carbon disulphide, the ratio of liberated sulphur to residual black trisulphide indicates the proportion of pentasulphide (or alternatively of tetrasulphide and insoluble sulphur) in the original material.

New Machines and Appliances

Improved Circular Mandrels

THE drawback in the use of the usual curved mandrels for inner tubes has been that they do not conserve vulcanizer space. This feature has been overcome by making curved mandrels for the same size of inner tube of two different curvatures as illustrated in the phantom drawing here shown. This permits the mandrels of smaller diameter to be nested inside those of broader curvature when loaded in the heater. This arrangement doubles the number of circular mandrels accommodated in the same vulcanizer.

The wide spread mandrels and those of the regular curve both produce the same size inner tubes when stripped. An average of 50 standard curved mandrels can be accommodated in a standard 20-foot vulcanizer while 100 can be accommodated when



How Circular Mandrels Double Heater Capacity

formed of two curvatures and loaded as pictured, thus doubling the curing capacity.—The Clyde E. Lowe Co., 2976 East 81st street, Cleveland, Ohio.

Loop Conveyer System

One of the most practical conveyer systems for handling in the rubber factory, materials, molds and products in process, is that here illustrated. It pictures the loop system applied to handling molds in a tire vulcanizing department. The vulcanizers may be in any desired grouping owing to the flexibility of the system which consists of three loops. The first is a large loop handling the general run of tires, while the others are smaller and are used with heaters handling special runs of tires. The bed of the conveyer consists of rollers. A grade of 1½ per cent is required on straight rims and 2 per cent on the curves. As installed in a tire curing room the molds are removed from the vulcanizer by an electric hoist and set on a straight gravity section of the conveyer. As fast as received they are carried to the level section for opening and removal of the tires and refilling. Thence the molds are pushed onto a gravity section which carries them to the foot of the power conveyer set at a 10 degree incline which elevates them to a 38-inch level. Here they travel down to the vulcanizers. A foot-operated stop is provided at the curve nearest the vulcanizers to hold back the newly filled molds for the accommodation of the vulcanizer workmen.

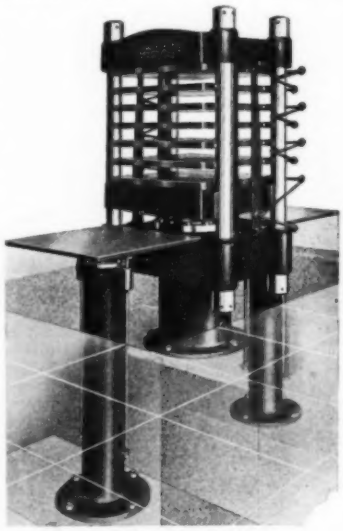
This loop system is used for the relief of plant traffic in various other departments of rubber factories such as the movement of

Mathews Loop System in a Tire Vulcanizing Department

crude rubber, empty and filled compound containers, mixed stocks, tires in process of manufacture, inspection, shipping and storage.—Mathews Conveyer Co., Ellwod City, Pennsylvania.

Rapid Loading Vulcanizing Press

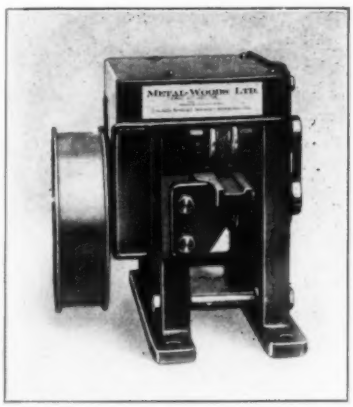
A six-opening curing press specially equipped for rapid loading is here represented. Its heating plates are made from solid sheets of rolled steel with drilled steam passages. Two presses are set side by side to make a complete unit with roller conveyers between the elevating tables front and rear of the presses. For this layout three sets of molds are required for operation of both presses. One press is started on its cycle when the other one is half through with its cycle.



French Multiple Molding Press

When pressing has been completed in one press the molds are withdrawn and stacked on the elevating tables. Freshly changed molds are entered into the press which is immediately closed. The discharged molds are then pushed singly onto the roller conveyer from the elevating table, and discharged, refilled and stacked on the elevating table in front of the second press ready for reloading that press. By this method 2 sets of molds are always in the press while the third is in preparation for a heat. The molds are always circulated in the same direction. This loading system is being worked successfully in a very large molding plant.—The French Oil Mill Machinery Co., Piqua, Ohio.

British Rubber Trimming Machine



Metal-Woods Rubber Trimmer

The compact rugged bench machine here pictured can be operated either by hand or power. Its construction and adjustment is such that it will trim all kinds of narrow, flat and round molded strips, brake rubbers, pedals, etc., which are passed through the machine supported in a guide. Trimming may be effected with perfect accuracy at six times the speed of hand work. The machine can be operated by unskilled labor with a little coaching.—Metal-Woods, Ltd., Church street, Manchester, England.

Airbag Inserter

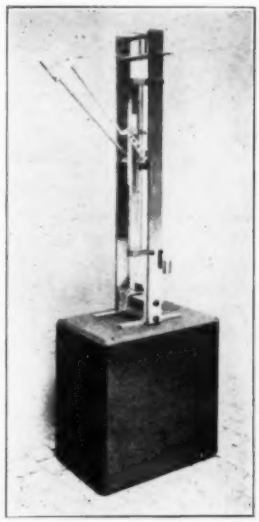
The work of inserting airbags in tire casings is not only very laborious but one that results in damage to the airbag unless done by machine. The vertical type inserter here shown will insert airbags in tires of all passenger car sizes including 7.30 balloon size, thus placing it in the lead. The action of the machine has no injurious effect on the bags, but, in fact, extends their period of utility much beyond that under hand insertion.

Williams Airbag Inserter

The machine is operated by air pressure, is not complicated and therefore dependable in service. In operation the three pins projecting through the front of the machine are set by operation of one foot lever to the outer limits of their respective quadrants. The airbag is then hung over them vertically. Movement of the second foot lever draws the pins toward the center thereby compressing the airbag at three points. The tire is then placed around the compressed bag, the three pins are then drawn into the machine, freeing the bag which snaps into position within the tire. It requires 100 pounds air pressure to operate the machine efficiently and under this condition two men can bag 900 to 1,000 tires in 8 hours. It can be operated at lower capacity by one man.—The Williams Foundry & Machine Co., Akron, Ohio.

Hard Rubber Impact Testing Machine

The machine here illustrated is designed for measuring breaking resistance of hard rubber, bakelite and other molded compositions. Freedom from brittleness, or conversely, high shock resistance, is frequently of more importance than static tearing strength. In testing materials of low ductility, their strength is determined to advantage by impact, instead of by the application of static loads.



Pendulum Impact Tester

The machine is constructed on the well-known Charpy principle, extensively used in testing heat-treated steels. The only difference is that the model illustrated is of considerably higher sensitiveness, and that the specimen rods, in most cases, do not have to be notched.

A pendulum hammer, supported on ball bearings, swings between two vertical support columns of the machine. The face of the hammer which strikes the specimen carries a nose of definite radius. The pendulum, before the test is made, is held in its upward position at a definite height. When released, it drops and breaks the specimen rod resting horizontally between the two vertical columns on supports.

The illustration shows the position of the testing machine after a test has been effected. In this position the energy absorbed by fracturing a specimen is definitely shown on a uniformly divided direct reading scale calibrated in foot pounds and inch pounds.

The average value of ten tests should be taken as the test result. Materials used in the open should be tested at the lowest winter temperature; if used in warm places, they should be tested above the maximum heat encountered.—Alfred J. Amsler, Schaffhausen, Switzerland. Represented by Herman A. Holz, 17 Madison avenue, New York, N. Y.

Novel Molded Airbag

A perfected molded airbag is here pictured as developed by long experimentation. The constant heat to which an airbag is subjected is the chief cause of its deterioration. In this instance long life is assured by using materials of special heat resisting quality. Great strength and protection are secured by means of extra fabric plies in the sidewalls and ends and extra thickness of rubber both inside and out. A special cord attachment at the inflating end serves conveniently to pull the bag from the mold. In service glycerine is put inside the bag after every 25 cures to keep it soft and flexible. With this precautionary measure, and its heat resisting construction, the bag affords the vulcanizer an average number of cures far in excess of the usual airbag.—Mohawk Rubber Co., Akron, Ohio.

New Mohawk Airbag

Flat Band Tire Builder

A flat band tire building unit embodying the principle of mechanically centering the plies on the drum is here illustrated. The rolls of fabric and the liner take-up run on roller bearing arbors eliminating friction. The material passes over an idle roll, which takes up the liner, through guides fitted with roller bearing rolls and to a center line on the building drum. As the roll of fabric unwinds it is held central with the guide table by adjustable arms which insure perfect centering of the material on the drum.

Hermann Band Tire Builder

The fabric end of the machine is so constructed that two plies of material are placed on the drum with slightly more than one revolution. The under ply is spliced without interference from the top ply with distinct saving of time. Maximum uniformity of tension is also assured by the mechanism.

The building stand is of 2, 3 or 4-roll capacity and the fact that the plies can be put around the drum with either the forward or the reverse motion makes it adaptable to all sizes of tires.

The machine is further distinguished by an easy acting slip clutch and a quick acting brake in addition to a motor reverse control, all combined for durability in service.—The Hermann Tire Building Machine Co., Lancaster, Ohio.

Process Patents

The United States

1,583,850 Manufacture of footwear. Charles H. Morrill, Swampscott, Massachusetts, assignor to United Shoe Machinery Corporation, Paterson, New Jersey.

1,584,413 Making acid proof containers. Raymond M. Warner, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,585,043 Thread and method for manufacturing impregnated fabric. Erling Meier, assignor to Lorentz Segelcke Daae, Roadhugaten, both of Christiania, Norway.

1,585,111 Floor covering. Samuel Reichert, Spokane, Washington, assignor to Indioleum Products Co., a corporation of Washington.

1,585,759 Radiocabinets. George W. Bulley, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,585,837 Tire. Frisbey G. Eiker, Washington, D. C.

1,586,076 Process for producing perforated sheet sponge rubber. Charles T. Dickey, Elizabeth, New Jersey.

1,586,219 Attaching heels and treads to shoes. George C. Roppert, assignor of one-third to Joseph J. Liberatore, both of Milwaukee, Wisconsin.

1,586,737 Molded rubber handwheels. Harvey D. Geyer, assignor to The Inland Manufacturing Co., both of Dayton, Ohio.

1,586,774 Gusseted footwear. Edgar S. Bott and Arthur S. Funk, assignors to La Crosse Rubber Mills Co., all of La Crosse, Wisconsin.

1,587,267 Manufacturing containers. John M. Ahlgren, Indianapolis, Indiana, assignor to Ahlbell Battery Container Corporation, Waukegan, Illinois.

The United Kingdom

248,898 Molding blocks. Universal Rubber Paviors (Manchester 1923) Ltd., and L. Gaisman, Chatham Street Rubber Works, Canning street, Audenshaw, near Manchester, and A. E. Brown, Kavanagh Lodge, Brentwood, Essex.

249,174 Vibratory diaphragms. F. T. D. Coe, 48, Burnbury Road, Balham, London.

Germany

429,060 (February 6, 1924). Method of repairing rubber goods or to connect rubber pieces by cold vulcanization. Weldon Ltd., London, England, represented by: L. M. Wohlgemuth, Berlin S. W. 61.

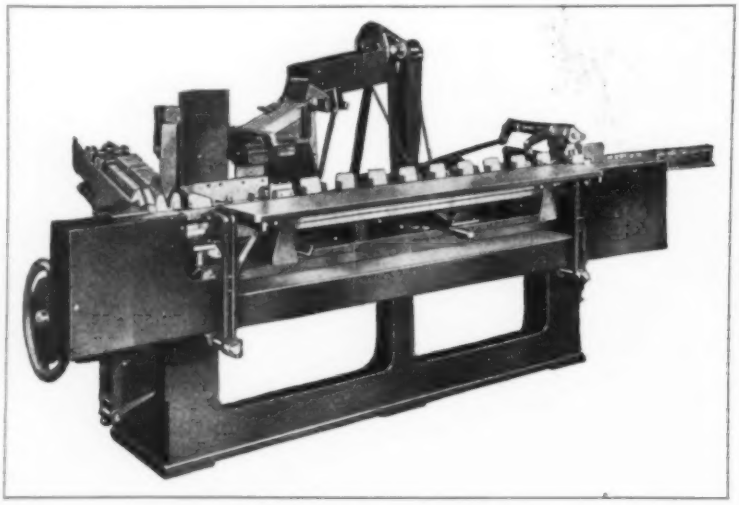
429,275 (June 23, 1923). Method of crimping thin rubber sheets. Carl Plaat, Köln-Nippes.

430,023 (December 6, 1924). Method of making sheets of crude rubber thread. Hermann Debor, Zielstattstrasse 55 a, Munich.

430,141 (May 28, 1924). Method of making pneumatic tires. Vereinigte Gothania-Werke A.-G., Gotha.

Cartoning Rubber Heels Automatically

Automatic machinery has proved the great cost reducer of this age in rubber, and its scope has covered small as well as large operations. The rapid mechanical development in heel manufacturing equipment is indicated by the increasing number of automatic machines that are being installed in modern heel departments. There are ingenious devices for inserting washers in the molds: automatic biscuit machines that cut the blank to exact weight and remove it from the die; and trimming machines which quickly and accurately cut away the overflow. While not automatic, these machines are effective time savers.



Redington Heel Packaging Machine

A recent adaptation for rubber heel packaging has been instrumental in aiding the large companies to meet competition on this rubber product. The Goodyear Tire & Rubber Co. had a problem to accomplish the speedy and careful cartoning of unusually irregular objects such as the Wingfoot heel.

A special machine was devised and manufactured for this specific purpose, operating after this wise. It feeds a carton from a magazine and forms it; closes the bottom end and places it in a conveyer bucket, which holds the carton in an upright position; then the desired number of nails is counted out from a hopper and dropped into the carton as it passes along; after which an operator places a pair of rubber heels in each carton, the top thereof being closed at the other end of the conveyer. There is a standard type of cartoning machine to meet practically any condition or type of package.—F. B. Redington Co., 112-114 South Sangamon street, Chicago, Illinois.

Machinery Patents

The United States

1,584,465. VULCANIZER FOR HOLLOW ARTICLES. This consists of two cylindrical chambers arranged tandem, the first being steam heated for curing and the second water cooled. Through both chambers tubes are arranged connecting them from end to end. The goods, contained in cartridge-like molds are entered in the tubes at the steam end of the apparatus and advanced through to the outlet of the cooled tubes by successively pushing in new molds. Expansion and curing of the articles in the molds take place as they advance through the hot chamber. When they reach the farthest end of the cooling chambers their temperature is reduced sufficiently to permit removal of the articles without danger of their being distorted by expansion.—Thomas W. Miller, assignor to The Faultless Rubber Co., both of Ashland, Ohio.

1,584,477. HEEL WASHER DISTRIBUTER. This tool is in hand plane form, supported on a pair of runners. On its deck are attached a series of washer distributing units mounted on swingable arms. These units are spring alined with the direction of movement of the plane and so related that they simultaneously follow adjacent rows of mold pins and deposit a washer upon each.—Charles I. Schrock, Pasadena, California, assignor to The Goodyear Tire & Rubber Co., Akron, Ohio.

1,584,941. TIRE VULCANIZING APPARATUS. A stationary bottom hollow section to receive the lower part of a tire mold is supported upon posts. Spaced around its circumference are guide posts for its corresponding movable upper hollow section. Surmounting the frame is an air pressure cylinder for raising the upper section. When closed over a tire mold the sections are clamped together by bolts, thus forming a steam tight chamber around the mold supplied with steam through flexible connections.—Edward Hutchens, Milwaukee, Wisconsin.

1,585,274. RIMMING PRESS. A press especially designed for clamping the rim rings on balloon and heavy truck tires without disturbing the formation of the cord fabric and weakening the walls of the tires. This result is attained by the employment of swinging hook arms having sliding pivots and providing a table having a central portion only which raises. Large tires are thus raised entirely clear of the table during the rim clamping operation.—Thomas H. Williams, assignor to The Adamson Machine Co., both of Akron, Ohio.

1,585,739. APPARATUS FOR DRYING RUBBER. This is designed to hold a large amount of rubber in sheet form, drying in a circulation of air or non-oxidizing gas. In the apparatus are contained any number of chambers. In the floor are set gratings which connect with the interior of the drying chamber with a space beneath the floor. In the upper part of the chamber a flue serves to introduce the drying medium. A by-pass flue connects the space under the chambers with the space above the sheet rubber and is provided with an exhaust fan at its upper outlet. Thus constant circulation is maintained through the drying chamber and the space below. Steam heating coils are placed in front of the exhaust fan to heat the drying gas before its entrance to the chamber. The gas may be withdrawn and replenished constantly or as it becomes saturated with moisture. Fresh gas enters the flue at the top of the chambers.—William T. Runnals, Jr., assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,585,904. MACHINE FOR MAKING MULTI-CELLULAR INNER TUBES. This apparatus is attachable to a tubing machine. It consists of a special die for producing tubes in curved form and suitable mechanism whereby a reciprocating plunger feeds raw rubber disks to the inner tube in a direction normal to length. These disks serve as diaphragms dividing the tube into compartments. Means are also provided for introducing into each compartment of the tube thus formed a valveless rubber feed tube, which is secured to the wall of the air tube by means of studs.—Thomas B. McLeroth, assignor to T. B. McLeroth, Ltd., both of London, England.

1,586,639. RING COVERING MACHINE. This mechanism applies a rubber coated fabric as a cover to a bead ring for a tire bead core. Its mechanism progressively attaches the cover strip to the inner periphery of the ring and then folds the strip toward the outer periphery and obviates all undue wrinkling in the process. The work is effected by a series of conveying and folding rollers arranged on the arc of a circle and between which the wire bead ring is rotated while being covered.—Robert R. Ambler, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,586,756. CONVEYER FOR BIAS CUTTER. A strip of rubber coated fabric is received on the table and the floating pulleys of the conveyer act through cables to continuously pick up the strip and advance it on the belt conveyer. Further operation of the conveyer causes reverse movement of the pulleys and thereby carries away the strip.—Frederick L. MacAleese, Milwaukee, Wisconsin, assignor by mesne assignments to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

1,587,027. MACHINE FOR MAKING FIBER COMPOSITION. This machine is of the Fourdrinier type used in paper making, which is modified by the addition of an endless wire screen in contact with the fibrous material forming the sheet. This arrangement protects it from injury or displacement under the suction and pressure used in consolidating the sheet. The presence of the upper wire screen also allows suction to be applied to the upper side of the fibrous sheet in addition to that applied under it.—William G. O'Brien, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,583,799 Tire vulcanizing apparatus. James A. Rutherford, Rochester, New York.

1,584,371 Apparatus for severing rubber. Richard T. Griffiths, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,584,934 Adjustable pressure feed and equalizing chuck for inflating hose. William A. Harris, assignor by direct and mesne assignments to The G. & H. Tire Chuck Gage Co., both of Greenville, South Carolina.

1,585,590 Tire coupling. Louis Lisson, Syracuse, New York.

1,585,685 Conveyer. Max H. Pade, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,585,918 Beveling and sealing clamp. William F. Irrgang, Chicopee, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,585,933 Apparatus for retreading pneumatic tires. Lindsay Miller, Freemantle, Western Australia, Australia.

1,586,603 Core for forming apertures in molded blocks, etc. David Waller Brown, Akron, New York.

1,587,282 Electric tube plate vulcanizer. Carleton W. Campbell, assignor to Moll Manufacturing Co., both of Denver, Colorado.

The Dominion of Canada

260,661 Rubber cutter. The Anchor Cap & Closure Corporation, assignee of Abraham Podel, both of Long Island City, New York, N. Y., U. S. A.

260,907 Bias cutter. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Adrian Oren Abbott, Jr., Detroit, Michigan, U. S. A.

260,908 Annular article cutter. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Cecil Robert Hubbard, Newark, New York, U. S. A.

260,909 Cementing machine. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Herbert Rhodes Polleys, New Haven, Connecticut, U. S. A.

260,910 Cementing machine. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of Harry Francis Lewis, Hamden, Connecticut, U. S. A.

260,990 Tire making machinery. Thomas Sloper, Devizes, Wiltshire, England. Reissue of patent No. 215,458 dated January 31, 1922.

261,359 Tire mold. The Lambert Tire & Rubber Co., assignee of William J. Beitel, both of Barberton, Ohio, U. S. A.

The United Kingdom

249,127* Tire molds. A. R. Colvin, 22 Laclede avenue, Trenton, New Jersey, U. S. A.

* Not yet accepted.

New Zealand

55,571 Machinery for manufacturing rubber soled footwear. Charles Horace Russell Collins, 377 Marrickville Road, Marrickville near Sydney, New South Wales.

Germany

943,765 (April 9, 1925). Hand machine for making hollow goods. Continental-Caoutchouc und Gutta-Percha-Compagnie, Hannover.

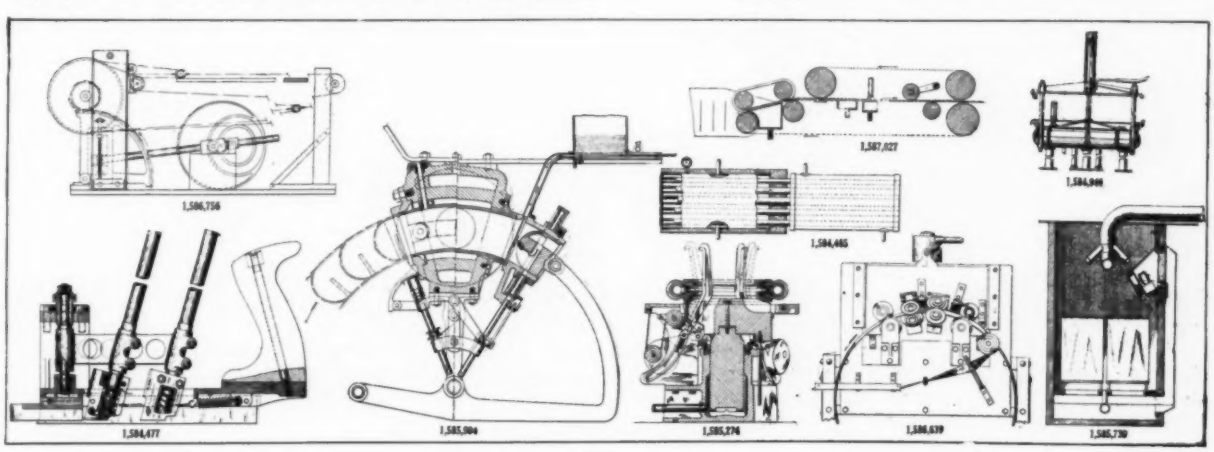
945,163 (March 9, 1926). Device for attaching hollow or solid tires. Continental-Caoutchouc und Gutta-Percha-Compagnie, Hannover.

946,089 (February 20, 1926). Machine for making hollow rubber goods. Max Müller, Maschinen- und Formenfabrik, Hannover-Hainholz.

946,754 (March 20, 1926). Device for exchanging rubber heels. Willy Graupner und Max Kuke, Hoheneck b. Stollberg.

946,926 (March 29, 1926). Vulcanizing apparatus. Armand Seiffert, Devrientstrasse 2, Hannover.

947,463 (March 24, 1926). Guard for rubber thread used in making all kinds of elastic bands. Hugo Müller, Müllerstrasse 24, Elberfeld.



New Goods and Specialties

Novelty Rubber Toy

HERE is a new toy that may be enjoyed by both the kiddies and their dogs. Nips Cat is more than a ball—a roly poly cat that me-ows when squeezed, has lots of pep, but does not bound away or roll under the furniture. He's fun for both indoors and outdoors and a dandy water toy as well.

Nips Cat is made of black rubber with yellow eyes and a red mouth, the colors, being waterproof, do not crack or flake off. The voice device is protected by a metal shell and will not rust, the raised ears protecting it from wet or sandy surfaces when inverted. It is not necessary to press any particular part to make it sound. The ears allow Nips Cat to be readily seized by child or pet and also prevent excessive rolling.

Nips Cat

The cat may ke kept clean by ordinary washing, and will not cut, scratch or injure child, pet or furniture.—Katnips, Inc., 21 South Main street, Providence, Rhode Island.

Rubberized Umbrella to Match Raincoat

For women and children, these rubberized umbrellas have met with instant favor, matching as they do the very popular colored raincoats. The cover of the Bombazine umbrella has all of the virtues of rubber: it is soft with a velvety finish, and by actual test weighs no more than an ordinary umbrella. It has a stout 10-rib frame, and because of its fabric-like finish will not split, crack or get "sticky."

The colors of Bombazine are made to appeal to every taste—blue, wisteria, red, green and tan and, in addition, recently has been made up in plaid, a style which has become a great favorite. It does not give a glazy appearance as might be expected, but imparts a pleasing effect, novel enough to attract attention.—Siegel, Rothschild & Co., Baltimore and Howards streets, Baltimore, Maryland.


Bombazine Umbrella

Tire for Passenger Cars

The Wm. Penn tire was designed for passenger car service only and to meet the demand for a good tire at a popular price. Made of the usual high pressure cord construction and the best materials, this tire will assure freedom from ordinary tire troubles and cares and will give long and satisfactory service. The tread is so designed that firm traction, free from side sway, is assured when brakes are applied. Wm. Penn cords are made in 30 by 3½ clincher type and in the straight side construction there is a great variety of sizes.

For heavy duty service the same company manufactures a special tire, the Extra Oversize Quaker TTT cord, while for light commercial trucks, such as Fords and Chevrolets the 30 by 5 S.S. will give excellent service.—Quaker City Rubber Co., Wissinoming, Philadelphia, Pennsylvania.


Wm. Penn Tire

Animated Figures for Slickers

Animated faces painted with waterproof paints on raincoats will change their expressions with every movement of the wearer through this new invention: the eyes, eyelashes and lips, encased in waterproof celluloid compartments, being movable. The illustration shows a slicker on the back of which is a girl's face with movable eyes. Other designs are dolls, lions and cats, and a particularly gruesome style is that of a skull. Additional movable features are under development and a great variety of models will be released by the manufacturer, The Cooper Rainwear Manufacturing Co., 52 West 17th street, New York, N. Y.


Face with Movable Eyes

Timing Device for Racing Cars

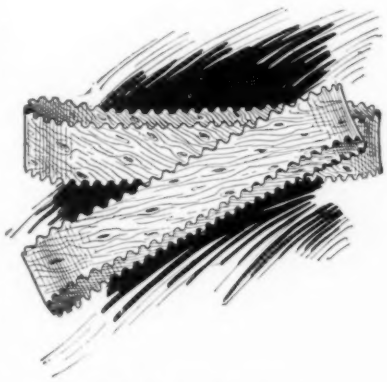
This employs a length of ¾-inch garden hose laid across the track, and connected to a cylinder that operates a lever. When the driver is qualifying on the track, the front wheels force the water into the cylinder which operates the lever, this starts the stop-watch. When the lever is moved outward, the back wheels have no effect on the hose as the plunger is pushed back into its normal position when the car is on its qualifying lap. As soon as the driver crosses the hose again, the watch is stopped.

Balanced Golf Ball

A golf ball of new construction that establishes permanent and perfect balance has recently been introduced. The ball comprises a vulcanized molded center of proper resilience made spherical and with corrugated surface. The latter feature affords secure attachment of the tough outer cover. The gravity of center and cover is alike. The elimination of rubber thread winding on the center not only aids in balancing the ball but reduces its cost of manufacture.—Mitzel Golf Ball Corporation, Jersey City, New Jersey.

Golf Garter

This garter is made for both men and women and may be used for bathing purposes as well as for sports wear. The garter is simple in construction, no fancy ribbons or shirring to be ruined by hard wear and has gained great popularity since being put on the market by the manufacturers, The Nieblo Manufacturing Co., Inc., 38 East 23rd street, New York City.



Reddy Sports Garter

Self Curing Repair Kit

Punctures in tubes, cuts, broken fabric or stone bruises are repaired by a combination tire gum and tire cement manufactured by the St. Louis Rubber Cement Co., 3951 Laclede avenue, St. Louis, Missouri, the friction caused by the tire running on the road vulcanizing the casing to the patch. No matter how large the break is, the gum can be forced into the opening and, because of its plasticity, can be made to fit the curve of the tire when the operation is completed. Before the cement is applied the surface around the puncture should be thoroughly cleaned, when the cement is dry, a small ball of the gum is placed directly over the cut, pressed down firmly, using the lid of the can to produce a smooth beveled edge. If the break or hole is large, it may be reinforced by cementing on a blowout patch or boot, the tube patch then acting as an anchor to prevent the boot from creeping out of position.

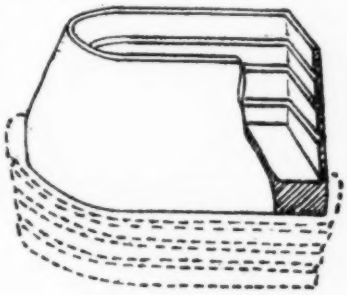
Water Bottle Mask

This is simply a double-walled rubber mask with space for water between the walls. The mask when empty weighs about 12 ounces, and will hold one pint of water. This device is put on as easily as a hat, the bands over and around the head are laced to fit and openings allow the wearer to breathe, see and talk. The tape around the neck is not essential as the mask snugs up to the chin without it. The water distributes evenly and does not bulge at any point. The mask will, no doubt, be welcomed for facial treatments, and for overcoming neuralgic pains, etc.—Mrs. Catherine Pauley, Lockland, Ohio.

Pauley Water Bottle Mask

Rubber Heels Requiring Neither Nails Nor Gum

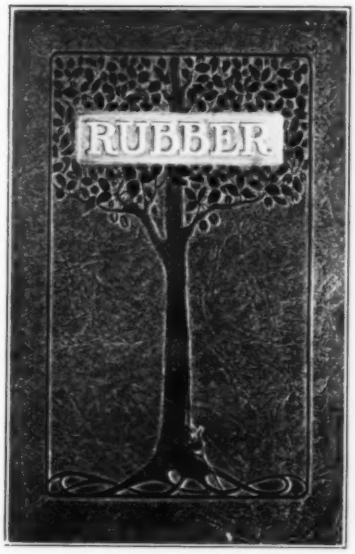
This newly patented rubber heel is made to be slipped on over the heel of the shoe. It can easily be changed as no nails or gum are needed in attaching it. Simple construction and comfort plus handiness is claimed for it. The patentee, Solomon Schureck, Steinstrasse 59 I, Düsseldorf-am-Rhein, Germany, is offering the manufacturing rights for sale.



Detachable Rubber Heel

Road Markers

Rubber road markers have been adopted in Boston to replace the painted strips and arrows as guides to traffic. The rubber block carrying the necessary markings is vulcanized under pressure to a steel plate ¼-inch thick, the plate then being imbedded in the road, flush with the level of the pavement.



THIS APPROPRIATE COVER FOR A HANDBOOK ON RUBBER IS MADE OF A COMPOSITION OF RUBBER AND COTTON LINTERS WHICH PRODUCES A VERY BEAUTIFUL FINISH. THE BOOK HAS BEEN COMPILED BY FRANCIS R. HENDERSON, PRESIDENT OF HENDERSON, HELM & CO., INC., NEW YORK, N. Y., AND IS FOR PRIVATE DISTRIBUTION ONLY. THE CLAIM MADE FOR THE RUBBER COVER IS THAT IT IS MORE FLEXIBLE AND MORE DURABLE THAN LEATHER WITH THE ADDED ADVANTAGE OF BEING A GREAT DEAL LESS EXPENSIVE.

All-Purpose Athletic Shoe

A new Ked style has recently been placed on the market by the United States Rubber Co., 1790 Broadway, New York City, which is called the Royal Tread. This shoe is suitable for every athletic purpose, such as camping, basketball, summer sports and everyday wear. The sole is molded with suction holes which grip firmly on any surface, and the shoe may be worn indoors as well as outdoors.

Royal Tread Keds

This new variation of the already popular Ked seems likely to duplicate the success of its predecessors, having already become established as a general favorite.

Non-Sink Army Suit

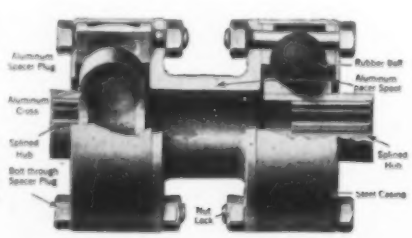
These suits were made for the United States army after exhaustive tests in which their safety and dependability in keeping one afloat were demonstrated. The suit is made of wool gabardine of the best grade with an inner lining of rubber foam, this inner lining serving a double purpose: it is warmer than a similar garment lined with fur and weighs only one-fourth as much. A man

Aviation Suit

equipped with this suit, over all his clothes and boots, floats perfectly in water assuming a vertical or swimming position at will. The extent of supporting power can be judged by the fact that he may also bear the weight of another man having no other support; the insulating properties estimated by the fact that the wearer may remain a very long time in the water without becoming cold and is never in any danger of drowning.—A. G. Spalding & Brothers, 105 Nassau street, New York, N. Y.

Rubber Balls in Universal Joint

This new joint is primarily intended for propeller shaft use in cars where the driving angles are very slight, as well as for a cushion connection between clutch and transmission on cars of all sizes. Flexibility is secured by the action of compressing rubber balls which are made of special wear resisting compound, there being eight balls in each joint. An aluminum cross is attached to each end of the driving shaft, and each face of each arm is cupped to receive a ball, bringing two balls between each arm of the cross. A spacer plug separates the two balls, the plug being bolted fast to the steel housing of the joint. The balls are held in place by light compression which prevents them from moving about and chafing, but allows the rubber to be compressed as the joint bends.



Universal Joint

No oil or grease is necessary and the joint can be used in any application where the usual driving angle does not exceed three degrees. As the drive is transmitted through live rubber, this joint cushions all shocks in the driving line, will not transmit vibrations and runs in perfect silence.—Spicer Manufacturing Corporation, South Plainfield, New Jersey.

Baseball Shoe

Every boy will want a pair of these Swat King shoes with which to compete with Babe Ruth as the home run champion. Made of heavy, durable duck with snappy sturdy leather stays, it is light in weight and ready for heavy duty. The vul-crepe sole and heel is of a springy, long wearing rubber composition made for sure-footed speed. The shoe will not mark floors and may be used for any athletic sport, both indoors and outdoors. Such an all-around sturdy footgear will make a special appeal at this time of the year when boys indulge in such strenuous sports.—Teeple Shoe Co., Waupun, Wisconsin.

Swat King

Bathing Cap

The Aviator swimming cap illustrated is a new model put out by Alex. Taylor & Co., Inc., 22 East 42nd street, New York City, and is made for the athlete who really swims and dives. The cap is fashioned of pure gum, fits snugly over the ears, keeping the water out, and the adjustable strap, which fastens under the chin, is one of the reasons for the popularity which has greeted the cap.

Aviator Cap

Rubber Foam for Hospital Use

The peculiar properties of rubber foam make it invaluable for hospital use, and one eighth inch sheeting is being marketed by Albert Pick & Co., 212 West Randolph street, Chicago, Illinois. As this product will not rot or crack, is sanitary and waterproof, it assures comfort to the patient and will prevent bed sores. In addition rubber foam has electrical properties which induce sleep and will not chafe nor irritate the skin. The sheeting can be washed and will last for years.

Cushion Grip for Shoes

One of the latest developments in non-slip heel linings is made of sponge rubber and full grain leather, resulting in a product which is clean, comfortable and practical. These "Grippers" fill the space between the heel and counter, eliminating all possibility of friction or pressure. They are designed to fit all sizes and shapes of shoes, and are very simple to attach—just moisten gummed surface and place in shoe. They are an economy to the customer because of their saving of stockings; and to the dealer as the one style only eliminates the carrying of a large stock of assorted sizes.—Silverite Gutterman Co., 76 High street, Boston, Massachusetts.

Cushion "Grippers"

The Editor's Book Table

Book Reviews

"RUBBER PRODUCTION IN AFRICA." By H. N. Whitford and Alfred Anthony. Published by Department of Commerce, Washington, D. C. Crude Rubber Survey, Trade Promotion Series, No. 34. Paper, 136 pages, 6 by 9 inches.

THIS publication, prepared as part of the Survey of Essential Raw Materials, authorized by the Sixty-seventh Congress, is arranged in two sections, the first and smaller division dealing with general conditions relative to rubber planting in Africa, the second section treating the subject more in detail. A useful map and an excellent bibliography add to the interest of the bulletin.

"S. A. E. HANDBOOK," March, 1926. Society of Automotive Engineers, 29 West 39th street, New York, N. Y. Cloth, about 200 pages, 4½ by 7½ inches.

This handbook of specifications and engineering data is revised and reprinted semi-annually. The book is invaluable to the automotive engineer, covering as it does in 19 sections every feature of automobile construction. The book is well indexed.

"RUBBER AND ITS USES IN BUILDING WORKS." By H. P. Stevens and B. D. Porritt. Published by the Propaganda Department of the Rubber Growers' Association, Inc., 2, 3 and 4 Idol Lane, Eastcheap, London, E. C. 3, England. Paper, 32 pages, illustrated, 5½ by 8½ inches.

In the seven sections of this booklet a short account is given of the preparation and properties of rubber, with particular reference to its uses in building and allied industries. The publication includes a short bibliography and a glossary of some of the terms used in the rubber industry.

"A PATHOLOGICAL SURVEY OF THE PARA RUBBER TREE *(HEVEA BRASILIENSIS)* IN THE AMAZON VALLEY." Department Bulletin No. 1380. Prepared by James R. Weir, Bureau of Plant Industry. Published by Government Printing Office, Washington, D. C. Paper, illustrated, 6 by 9 inches, 129 pages.

This comprehensive and carefully-prepared bulletin reviews not only the general and special root, stem, and leaf diseases of the Hevea rubber tree, but also contains much information regarding fungi and parasitic plants which have been found injurious to it. In the extended bibliography reference is made to various articles dealing with the subject in *The India Rubber World*.

"FACTS AFFECTING THE IMPORTATION OF RUBBER TIRES AND TUBES THROUGHOUT THE WORLD." Prepared by the Rubber Division for the use of American exporters. Published for 1926 by the Department of Commerce, Washington, D. C. Paper, approximately 150 pages, 8½ by 11 inches.

Some valuable statistics and important items of information regarding the tire export trade appear in this publication which has as its sub-title "Rubber Goods Exporters' Manual—Tires and Tubes."

SOLID TIRE EXPORTS

During the calendar year 1925 the United States exported 112,592 solid tires, value $3,179,597; the United Kingdom shipping 69,444, value, £408,451; and Canada, 10,210, value $248,929. The leading markets for American-made solid tires were: the United Kingdom, 25,149, value $566,762; Australia, 15,825, value $483,447; Cuba, 12,164, value $345,382; New Zealand, 6,009, value $234,428; Japan, 8,499, value $143,026; Argentina, 4,336, value $143,051; Philippines, 4,980, value $130,192; Java and Madura, 3,530, value $108,697; and Spain, 3,009, value $102,181.—Department of Commerce.

New Trade Publications

"THE BALANCED MOTOR HAND BOOK" IS THE TITLE OF A SMALL illustrated publication, written in non-technical language, and prepared by the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania.

UNDER THE TITLE "AGE-RITE" THE R. T. VANDERBILT CO., INC., 50 East 42nd street, New York, N. Y., is publishing a booklet which sets forth the properties of this useful anti-oxidant.

"AMERICA AND RUBBER RESTRICTION" IS THE TITLE OF A BOOKLET of twenty pages prepared by David M. Figart, special agent of the Department of Commerce in 1923 and 1924, and author of the report, "The Plantation Rubber Industry in the Middle East."

"SOUNDING THE KEYNOTE OF INDUSTRIAL SELLING" IS THE TITLE of an illustrated and carefully-planned collection of broadsides published by the McGraw-Hill Co., Inc., Tenth avenue and Thirty-sixth street, New York, N. Y.

"RUBBER—ITS PRODUCTION AND MARKETING" IS THE TITLE OF a well printed and illustrated booklet of forty-five pages, prepared by F. R. Henderson, of Henderson, Helm & Co., Inc., 44 Beaver street, New York, N. Y. Several graphs and maps add to the interest of the publication.

"MORRIS HAND CRANES" IS THE TITLE OF A FULLY ILLUSTRATED catalog being sent out by Herbert Morris, Inc., Buffalo, New York, manufacturer of chain-hoists, monorails, etc., for rubber mills.

Abstracts of Recent Articles

NO REASON FOR PESSIMISM. A survey of the present conditions of the rubber industry in the development of industrial progress. —H. C. Pearson, editor *The India Rubber World* in *The Magazine of Wall Street*, May 8, 1926, 13.

VARIATIONS IN THE TENSILE STRENGTH OF RUBBER SULPHUR VULCANIZATES. Experimental data and observations on the effect of small percentages of sand, silt, clay and bark added to crude rubber in its original preparation from latex.—B. J. Eaton and R. O. Bishop, *Malayan Agricultural Journal*, March, 1926, 53-64.

HEAT REACTIONS OCCURRING DURING VULCANIZATION OF RUBBER.—Alfred A. Perks, *Journal Society Chemical Industry*, May 21, 1926, 142T-149T. Graphs.

NOTE ON THE COMMONER UNIVERSAL INGREDIENTS FOR RUBBER. —D. F. Twiss and E. A. Murphy, *Journal Society Chemical Industry*, May 7, 1926. Graphs.

BALLOON TIRES FOR USE WITH DROP CENTER RIMS. Discusses development of British and American drop center rims as used with balloon tires.—B. J. Lemon, *Journal Society Automotive Engineers*, June, 1926, 623-630. Illustrated.

INSTRUMENTATION AND RESULTS OF RIDING-QUALITIES TESTS. Covers the design and construction of several new accelerators. Measurements of axle accelerations and displacements indicate the need of correlation of the factors entering into riding qualities.—Roy W. Brown, *Journal Society Automotive Engineers*, June, 1926, 593-600. Illustrated.

ELECTRODEPOSITION OF RUBBER SUGGESTS MANY INDUSTRIAL APPLICATIONS. Descriptive of the process and outline of practical uses.—Felix A. Elliott, *Chemical & Metallurgical Engineering*, June, 1926, 358-359. Illustrated.

VULCANIZATION AND ACCELERATORS. Part II. Serial.—André Dubosc, *Rubber Age*, New York, May 25, 1926, 144-145.

GENERAL RESULTS OF THE COOPERATIVE MOTOR TRUCK IMPACT TESTS. Description of instruments, test conditions, test data and outline of future work on heavy duty tires.—James A. Buchanan and J. W. Reid, *Journal Society Automotive Engineers*, June, 1926, 581-592. Illustrations, graphs and tables.

EFFECT ON MECHANICAL PROPERTIES OF THE FORMATION OF COLLOIDAL PRECIPITATES DURING VULCANIZATION.—G. Martin and W. S. Davey, *Journal Society Chemical Industry*, June 4 and 18 1926, 174T.

ALUMINUM LINED COAGULATING TANKS.—Coagulating tanks made from sheet aluminum have been found in practice to be quite satisfactory and to have points of advantage over tanks of glazed tiles.—Henry P. Stevens, *Bulletin Rubber Growers' Association*, May, 1926, 230.

LOW TEMPERATURE VULCANIZATION. Address delivered before the Institution of Rubber Industry, on the use of accelerators; methods and advantages of low temperature vulcanization.—F. Thomas, *Rubber Age*, London, June, 1926, 160-163.

MANUFACTURE OF ERASIVE RUBBERS. Descriptive of factory practice.—Anonymous, *India Rubber Journal*, June 5, 1926, 856.

PREVENTING THE FORMATION OF SCRAP IN MANUFACTURING OPERATIONS. Practical suggestions.—Anonymous, *India Rubber Journal*, June 5, 1926, 861-863.

DETERIORATION WITH TIME OF CRUDE AND VULCANIZED RUBBER. A critical review of the published important work on the subject with bibliography of 68 references.—A. Cherbuliez, *Recherches et Inventions*, 6, 877-880 (1925); 7, 102-107, 135-139 (1926).

THE WORK OF THE BUREAU OF STANDARDS ON RUBBER.—C. E. Waters, *Journal of Education*, 3, 291-295 (1926).

ON THE PHYSICAL AND NORMAL VULCANIZATION PROCESSES, THEIR MUTUAL DEPENDENCE AND COOPERATION.—M. Kröger, *Gummi-Zeitung*, May 14, 1926. 1803-1807, Tables.

TESTING THE ABILITY OF NEW MALE AND FEMALE WORKERS IN RUBBER GOODS FACTORIES.—*Gummi-Zeitung*, May 21, 1926, 1858-1859.

RUBBER AS A FACTOR IN THE DEVELOPMENT OF MOTOR VEHICLES.—*Gummi-Zeitung*, May 21, 1926, 1866-1868. Illustrated.

RUBBER MIXINGS WITH UP-TO-DATE STRENGTHENING AGENTS.—Dr. Werner Esch, *Gummi-Zeitung*, May 28, 1926, 1917-1919. Formulas.

TEMPERATURE MEASUREMENTS IN VULCANIZING PROCESS IN RUBBER GOODS FACTORIES.—Ing. Mietschek, *Gummi-Zeitung*, May 28, 1926, 1921-1923. Illustrations, graph.

A SIMPLE AND PRACTICAL SMOKE HOUSE FOR SHEETS.—Dr. R. Riehl, *Archief voor de Rubber Cultuur*, March, 1926, 109-116. Illustrations.

A CASE OF CIRCULAR ROT IN JAVA.—Dr. Ir. F. C. van Heurn and Dr. A. Steinmann, *Archief voor de Rubber Cultuur*, March, 1926, 117-118. Plates.

COLLOID CHEMICAL PROCESSES DURING HOT VULCANIZATION.—H. Pohle, *Kolloid-Zeitschrift*, May, 1926, 1-7. Color plates.

YIELDS OF RUBBER FROM BUD GRAFTED TREES ON KAJANG ESTATE, SUNGEI REKO DIVISION.—F. G. Spring, *The Planter*, April, 1926, 259-261. Tables.

OBTAINING RUBBER HYDROCARBON FROM RUBBER LATEX AND ITS RESOLUTION INTO FRACTIONS.—Dr. R. Pummerer, *Kautschuk*, April, 1926, 85-88.

OBSERVATIONS IN CONNECTION WITH THE JOULE EFFECT IN SYNTHETIC RUBBER.—Dr. Lothar Hock and Dr. Philipp Siedler, *Kautschuk*, April, 1926, 88-90. Illustrations.

THE CONDITION OF THE "RESIN" IN RUBBER.—Dr. H. Loewen, *Kautschuk*, April, 1926, 90-91.

NEW SOLVENTS MADE BY THE HYDROGENATION PROCESS.—Elvin H. Killheffer, *American Dyestuff Reporter*, May 31, 1926, 345-349.

Legal Decisions

Customs Appraisers

No. 51849.—Protest 63876—G/67977 of G. W. Sheldon & Co. (Chicago). This protest relates to rubber balls of various sizes, trapezes, ring apparatus, and gymnasium apparatus claimed dutiable under paragraph 1402, tariff act of 1922. Opinion by Sullivan, G. A. The rubber balls were of various sizes, fancifully colored, evidently suitable only for children's use. They were held properly classified as toys under paragraph 1414. There was no evidence, other than the samples, as to the trapezes, ring apparatus, and gymnasium apparatus. They were found clearly not equipment such as is ordinarily used in conjunction with balls in exercise or play. They were therefore held not classifiable under paragraph 1402. The protest was overruled in all respects. United States *v.* State Forwarding & Shipping Co. (13 Ct. Cust. Appls.—; T. D. 41216) and United States *v.* Stewart (12 Ct. Cust. Appls. 533; T. D. 40734) noted.—*Treasury Decisions*, Volume 49, No. 20, page 15.

No. 51859.—Protest 88047—G of Calhoun, Robbins & Co. (New York). Elastic cord classified as trimmings at 90 per cent ad valorem under paragraph 1430, tariff act of 1922, is claimed dutiable under paragraphs 913 and 1207, respectively. Opinion by Howell, G. A. In accordance with stipulation of counsel the cotton elastic cord was held dutiable at 35 per cent under paragraph 913, and the silk elastic cord at 55 per cent under paragraph 1207.—*Treasury Decisions*, Volume 49, No. 20, page 17.

Reappraisements

Julius Schmid (Inc.) vs. United States. United States General Appraisers. Protest 82231—G against the validity of reappraisement 4920—A, Circulars 31663 and 33767. Decided May 26, 1926.

A protest as to the legality of reappraisement was made by the importers mentioned, who questioned the increasing value over the entered value in the case of certain rubber balls imported from Germany. Judge Fischer summarized the court's finding in favor of the importers. Chief Justice Howell was, however, of dissenting opinion, claiming that there was substantial evidence to support the findings of the general appraiser, and held that, in his opinion, the protest should be overruled.—*Treasury Decisions*, Volume 49, No. 22, page 23.

JARS TO BE JUNKED?

Has the old type of battery jar been superseded by the complete hard rubber battery box? Several American hard rubber manufacturers have recently decided that the individual jar is too costly an article to produce in competition with the box, and find the demand has turned sharply to the latter type. This condition makes the recent invention of the cheaper and better method of making jars of particular interest at this time.

As is the case in so many recent improvements in rubber processing, the tubing machine is employed to advantage. In fact, rubber manufacturers are just beginning to regard the tuber as the ideal and most economical machine for the producing of many rubber articles. It takes mixed compound direct from the warming mill and fashions the article in one operation, with no heavy calendering expense, no cutting out of parts with the inevitable waste.

In this method of forming battery jars, the stock for the four sides of the jar, instead of being calendered in sheet form, run into a liner, unrolled, cut, cemented, and joined when wrapped round the core, is run from a tuber in tube form of the exact size to fit over the jar core. This piece of tubed rubber is cut off in lengths about ½-inch longer than the height of the jar, and fitted over the core with the projecting stock at the bottom to form a lap to join with the bottom. This eliminates the seam at the side present on the old type, and materially reduces the cost of jar making.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
814	Source of supply for crêpe rubber soling.
815	Fabric pulling machines.
816	Source of supply for sugar cane wax.
817	Rubber matting manufacturers.
818	Makers of white molded corrugated tongues with button for garter or hose supporters.
819	Manufacturers of gas masks.
820	Manufacturers of crêpe rubber soles.
821	Firms who do vulcanizing.
822	List of mineral rubber manufacturers.
823	Jobber calling on vulcanizing shops in London desires to represent American manufacturer of tire repair equipment.
824	American golf ball winding machine.
825	Names of manufacturers of paper wrapping machines for tires.
826	Manufacturers of machines for cutting rubber stationers' bands.
827	Firms making cutting machines for rubber goods.
828	Names of manufacturers of rubber balls.
829	Source of supply for compounded unvulcanized stock suitable for manufacture of inner tubes.
830	Manufacturers of hollands.
831	Firms in United States making latex cups.

Foreign Trade Opportunities

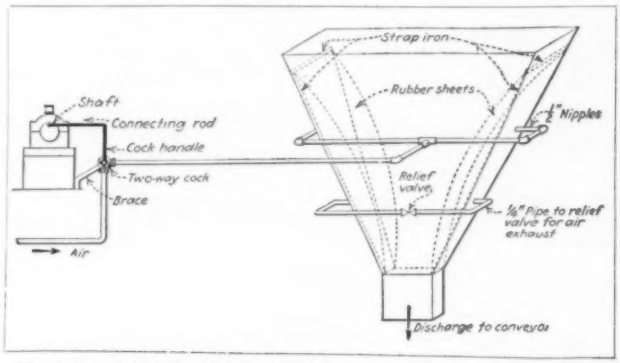
For further information concerning the inquiries listed below, address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House, New York, N. Y.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
20,384	Spain. Druggists' rubber sundries	Agency
20,385	Mexico. Druggists' rubber sundries	Agency
20,407	South Africa. Canvas rubber-soled shoes	Agency
20,480	Greece. Automobile tires and tubes	Purchase and agency
20,536	Egypt. Balloons with whistles	Agency
20,537	Germany. Boots and shoes	Agency
20,538	Sudan. Tires, pneumatic and solid, automobile, motorcycle, and bicycle	Agency
20,539	Brazil. Toys	Agency
20,540	Germany. Overshoes, 3,000 to 5,000 pairs	Purchase
20,549	Netherlands. Rubber goods for industrial, surgical, sport, and household purposes	Sole agency
20,553	Netherlands. Belting	Purchase or agency
20,583	Uruguay. Rubber-covered wire, 137,500 meters.	Purchase
20,624	Germany. Automobile and motor cycle tires	Agency
20,636	Uruguay. Rubber insulated wire, 40,000 meters.	Purchase
20,663	Germany. Rubber heels	Purchase and agency
20,666	Rumania. Rubber goods such as rubberized clothing specialties	Agency
20,667	England. Tires, inner, semisolid, automobile.	Purchase
20,668	England. Boots and shoes, brown and black, for women and children	Purchase
20,669	England. Compressed packing material	Purchase
20,685	Canada. Bathing caps, bibs, aprons, and baby pants	Agency
20,698	Germany. Rubber thread	Agency
20,727	Italy. Rubber balloon manufacturing machinery	Purchase
20,782	Switzerland. Rubber cloth for automobile coverings	Purchase
20,783	Uruguay. Automobile tires and tubes	Purchase and agency
20,785	Turkey. Sundries and fancy goods	Agency
20,786	Sweden. Tires, tubes and vulcanizing material, sundries and fancy goods	Agency
20,844	Norway. Rubber goods and friction tape	Purchase
20,847	Austria. Mechanical rubber goods and tires.	Agency
20,864	Egypt. Surgical gloves	Purchase and agency
20,865	Germany. Waste, crêpe rubber	Purchase
20,869	Egypt. Bathing caps and tennis balls	Agency

JAPAN'S IMPORTS OF AMERICAN-MADE TIRES AND TUBES HAVE increased from a total value of $161,906 in 1922 to $758,842 for 1923, $1,004,523 in 1924, and $1,086,702 in 1925. Values of casings rose from $123,792 in 1922 to $823,846 in 1925.

Rubber Prevents Materials Bridging in Hoppers

The delay and expense incident to the bridging or hanging up of many materials fed through chutes and hoppers can be entirely prevented by a unique application of rubber[1]. In the case of dried borax sticking in a hopper leading from an elevator to a belt conveyer, the hopper was arranged with two vertical and two inclined sides. The latter were covered with a loosely fitting lining of thick sheet rubber attached at the edges with thin strap iron and stove bolts so that two leakproof air cushions were formed. Half-inch air inlets entered the cushions through the center of the sloping sides of the hopper and the piping led to a two-way cock operated by a crank shaft on a stub-end power shaft. In this way pressure was admitted intermittently into the cushions from a source of compressed air. The exhaust from



Chemical and Metallurgical Engineering

Method of Preventing Bridging in Hoppers and Chutes

the cushions was piped near the base of the hopper and both cushions vented to the atmosphere through one relief valve.

By suitable adjustment of the apparatus fairly steady pulsations were set up in the rubber sheets. The weight of the falling material was sufficient to expel the air and the pressure of the air entering through the two-way cock expanded the cushion. The continual motions thus set up prevented the material from bridging in the hopper. The abrasion on the rubber was slight, one set of sheets lasting over three months, while the cost of renewal was practically negligible.

[1] By Maurice C. Cockshott, in *Chemical and Metallurgical Engineering*, June, 1926.

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

NUMBER	SPECIAL CIRCULAR
1166	"Crude Rubber News Letter."
1169	"Tire Exporters' Weekly News Letter."
*1170	"Rubber Exports from Amazon."
1171	"Crude Rubber Reexports from United States, Month of April, 1926."
1172	"Comparative Exports of Solid Tires from United States, United Kingdom and Canada During Calendar Year, 1925."
*1174	"Crude Rubber News Letter—Rubber Production in Africa."
1175	"Tire Exporters' Weekly News Letter."
1177	"Canadian Tire Exports During April, 1926."
1178	"Tire Exporters' Weekly News Letter."
*1179	"Italian Tire Exports During First Quarter of 1926."
*1180	"British Exports of Automobile Casings During April, 1926."
1182	"Crude Rubber News Letter—Co-operative Selling of Rubber."
1183	"Rubber Footwear Exporters' Monthly News Letter."
1184	"Preliminary Statistics of May Crude Rubber Imports."
1185	"Tire Exporters' Weekly News Letter."

Electrically Heated Hot Water Bottles

The rapid and inevitable cooling of the water in a hot water bottle is a matter that often occasions much inconvenience by the need of refilling. This has led to the substitution of electrically heated pads for water bottles which in some instances have not always proved satisfactory. Now, however, the ordinary hot water bottle may be used under conditions whereby the heat of the water can be retained by displacing the ordinary metal screw stopper with a special porcelain threaded stopper in which are contained special electrical terminals for making connection with the house current through an ordinary house plug connection. The object is not to heat the contents of the bottle to the desired heat from room temperature but to maintain indefinitely the initial heat of the water in the bottle to a practical uniform condition and thus obviate the frequent need of refilling the bottle with hot water.

The device is extremely simple and practically indestructible. It is, in fact, a screw stopper of electrical insulating material with a knurled top and threaded to screw into an ordinary hot water bottle. Encased within the stopper are a pair of electrodes, one of which is highly expansible when heated while the other is only slightly so under the same conditions. The expansible electrode extends in a right angle bend into a cavity in the taper end of the stopper and thus is immersed in the water. The other electrode extends straight to the same cavity. In action the electrodes are about an eighth of an inch apart so that the current readily flows from one to the other when the stopper is plugged into the electric outlet.

When in use the bag is first filled with hot water, closed with the electrically fitted stopper and the electric circuit plugged in. The heat expands the angle electrode downward away from the straight electrode doubling the distance between them and cutting off the electric current. As the water cools the angle electrode contracts to its original position and the current passes heating the cool water around the slight gap between them. In this way the water is reheated to the point when expansion again separates the electrode and stops the current. The action is thus entirely automatic and practically constant heat is maintained at the initial temperature.

Special interest attaches to this device owing to its simplicity of construction and use and the fact that it can be applied to the water bottles of usual construction.

Interwoven Single Ply Cord Tire

A common cause of failure of pneumatic tires is ply separation brought about either by the entrance of water and grit through a cut in tread or side wall or to destruction of the friction between plies by the heat caused by flexing of the carcass. In either case ply separation leads to rapid destruction of the tire. One of the newest and most unique fabric constructions designed to obviate ply separation is known as the Zeglen one ply interwoven cord fabric. It is produced from rubberized yarns of cotton or linen which are interwoven to form a single ply structure a quarter inch or more in thickness. It may thus be made to correspond in gage and strength to six or more plies in the ordinary built up tire of square woven or cord fabric.

The advantage of the new construction is evident from the fact that its structural unity of rubber and yarn effectively precludes separation, and affords the necessary cushioning or elastic union to reduce the friction and heat of flexing. At the same time the construction has increased strength together with greater elasticity. Thus the tire can neither blow out nor separate. A cut through the tread or wall does not admit sand or water owing to the integral character of the thick ply construction, therefore the carcass will continue to retain its original strength and will not blowout even if punctured. Being entirely free from liability to blowouts the tires can be repeatedly retreaded, each time giving practically the same mileage as that of a new tire. The riding quality due to their special construction is said to be equal to that of balloon tires and their cost of construction about the same as that of other first class pneumatic tires.

British Forward Rubber Sales

The *Financial Times* has published a complete record of the forward sales entered into by over 500 British estates in Malaya, Ceylon, Dutch East Indies, South India, Burma, and Borneo. Many of the companies made forward sales up to the end of 1927, while several concerns have disposed of their entire output until December, 1929, and two companies have sold part of their crops for each year until December, 1930.

It is interesting to note that of the total number of contracts closed by these companies, which must be between 600 and 700, if not more, only about 70 were at prices of 3*s* per pound and over, while in all four contracts are listed at 4*s* per pound and over, the highest amount being 4*s* 3½*d*. The average best prices were obtained in 1926 and 1927. In 1926 too the largest amounts seem to have been sold forward.

Below is a table giving details of contracts made by a few of the best-known companies:

	Standard Production	All-in Cost	Forward Sales			
			Amount Pounds	Price		Year
Anglo-Sumatra	£1,179,000	10*d*	90,720	*s* 1.	*d* 10¾	1925
			461,440	2.	3	1926
			107,520	2.	4¼	1927
Bajoe Kidoel	1,849,816	10¼	550,000	1.	11¾	1925-6
			392,000	1.	7½	1926-7
			62,720	2.	1	1927-8
Batoe Caves	698,400	11	134,400	1.	6	1925
			322,560	2.	1¼	1926
			134,400	2.	6	1927
Devon			772,800	2.	6¼	1926
			537,600	2.	6½	1927
			268,800	2.	6	1928
Gordon	286,680	9	40,320	1.	8	1925
			161,280	2.	3	1926
			53,760	2.	3¼	1927
			70,640	2.	3½	1928
			70,640	2.	0	1929
			70,640	2.	0	1930
Kuala Muda	1,490,121	9	537,600	3.	4¼	1926
			403,200	2.	7¾	1927
			80,640	2.	3	1928
			80,640	2.	3	1929
			80,640	2.	3	1930
Sembilan	909,000	10½	295,680	1.	9½	1925
			161,280	2.	0½	1926
			120,960	3.	0	1927
			268,800	2.	6	1928
Tanjong Malim	2,157,606	10	201,600	1.	4	1924-5
			873,600	2.	2¾	1925-6
			537,600	2.	6¾	1926-7
			268,800	2.	5	1927-8

PIONEER FILIPINO RUBBER PLANTING COMPANY

It is reported that the first Filipino rubber corporation, having been granted a lease of 2,500 acres of land in Cotabato province for fifty years, has been organized under the name of the Visayan-Mindanao Co., and is already planting 2,000 acres of its property to rubber, and the rest in hemp, cocoanuts, etc., so that the plantation will begin to make returns on the investment before the rubber comes to yield. The Filipino Government's recent policy has been to turn to productivity more than 1,500,000 acres of undeveloped land in the southern islands of the archipelago.

VIROL

It is known that crude rubbers deficient in natural resins and acids give inferior qualities to cured stocks containing them. The function of the rubber resins is to keep zinc oxide in solution in the rubber. A new rubber softener, known as Virol, has been developed for supplying the lack of the natural rubber resins and thus improving the physical properties of the cured product. The material is also an ideal softener for rubber and obviates priming of molds. It is a solid with smelting point of 80 degrees C., boiling point 220 degrees C. and is applicable to all types of rubber compositions.

News of the American Rubber Trade

Rubber Industry Outlook

THE income of a third of the American population is dependent on the harvests, the prospects of which for this year indicate a large gain in purchasing power. According to the National Industries Conference Board the United States has added 10,229,000 to its population since 1920. The nation's actual purchasing power has increased considerably more than these figures indicate because the reduced cost of living leaves a greater surplus available after purchase of the necessities of life.

A leading New York economist has recently stated that the permanent position of this new buying power has arisen from such factors as broader distribution of income, technical efficiency, and the perfection of industrial organization. Also that the part of the new purchasing power, derived from high wages and large profits due to clearing up accumulated shortages, has a temporary value, which can be expected to decline in the near future unless some new business of equal magnitude develops. This increase of purchasing power will be felt in the automobile industry and consequently in the demand for tires. Industrial leaders express optimistic views concerning the ability of the nation to continue the steady progress through the current year.

New York and London stocks of crude rubber have increased during the past six months, imports and consumption have each fallen off, the former in larger proportion than the latter. Imports of crude for May were 30,000 tons and consumption 29,000 tons. The price trends of both rubber and cotton have been downward. The technical position of rubber indicates the probability of an upward turn as tire consumption increases.

Automobile production and sales have been maintained at high levels. The motor vehicle output for May was 419,677. This surpasses all previous monthly records. The production for June will probably be somewhat less than May because of plant changes necessitated for new models.

Tire production schedules were reduced about 15 per cent, June 1, by the principal companies and operations are now proceeding at about 60 per cent of plant capacity. The mills are working from 3 to 5 days a week, and buying of yarn and fabrics is somewhat slack. Manufacturers' tire stocks are estimated at about 9,000,000. That of the entire country is estimated at about 3¼ months' supply. The supply last February was 4 months while that for April a year ago was 4¼ months. The stocks of inner tubes and casings now average practically double those of one year ago.

In view of the continued decline in price of spot and future rubber for the past two months, large dealer stocks and slow consumer demand, rumors are prevalent of a cut in tire prices soon after July 1 up to which time current prices are guaranteed to dealers. Good business is expected in July and August.

Production of rubber goods in other branches of the industry is proceeding steadily on unusual full seasonal schedules as indicated by the strong demand for supplies. The consumption of such supplies has been well maintained for the past six months and exceeds that required during the first half of last year.

Financial

Dividends Declared

COMPANY	Stock	Rate	Payable		Stock of Record
General Tire & Rubber Co.	Pfd.	1¾% q.	July	1	June 19
Goodyear Tire & Rubber Co. of Canada	Pfd.	1¾% q.	July	20	June 15
Norwalk Tire & Rubber Co.	Com.	20 cents q.	July	1	June 20
Norwalk Tire & Rubber Co.	Pfd.	$1.75 q.	July	1	June 20
Overman Cushion Tire Co.	Com. (A)	1½% q.	July	1	June 18
Overman Cushion Tire Co.	Com. (B)	$1.75 q.	July	1	June 18
Overman Cushion Tire Co.	Pfd.	$1.75 q.	July	1	June 18
Overman Cushion Tire Co.	Pfd.	$1.75 q.	Oct.	1	.....

New York Stock Exchange Quotations

June 21, 1926

	High	Low	Last
Ajax Rubber, com.	9⅞	9½	9⅞
Fisk Rubber, com.	20	19⅛	19¼
Goodrich, B. F., Co., com. (4)	54¾	53	53
Goodrich, B. F., Co., pfd. (7)	98¼	98¼	98½
Intercontinental Rubber, com.	16½	16¼	16½
Kelly-Springfield Tire, com.	14⅞	14½	14½
Lee Rubber & Tire, com.	9⅜	9⅛	9⅛
Miller Rubber, com. (2)	35½	35½	35½
Norwalk Tire & Rubber, com. (80c.)	8⅝	8½	8½
United States Rubber, com.	65	63⅛	64⅛

Akron Rubber Stock Quotations

Quotations of June 23, supplied by Otis & Co., Cleveland, Ohio.

COMPANY	Last Sale	Bid	Asked
Aetna com.	15⅜	15½	18
Aetna pfd.	93	..	..
Falls com.	10	..	9⅞
Falls pfd.	18⅞	..	19
Faultless com.	35	35	40½
Firestone com.	114	113	114
Firestone 1st pfd.	103½	102½	..
Firestone 2nd pfd.	99	98½	99½
General com.	150	..	149
General pfd.	106	104¼	..
Goodrich com.	53	..	..
Goodrich pfd.	98	..	..
Goodyear com. V. T. C.	37¾	..	37¼
Goodyear pfd. V. T. C.	103¼	..	..
Goodyear pr. pfd. V. T. C.	106	..	..
India com.	30	30	..
Miller com.	44	..	..
Miller pfd.	100	99⅝	100
Mohawk com.	35	..	37
Mohawk pfd.	75	70	73
Seiberling com.	25	25¼	26
Seiberling pfd.	95	95	96½
Star com.	12	..	..
Star pfd.	35	..	..
Swinehart com.	8½	..	..

The Miller Rubber Co.

The Miller Rubber Co., Akron, Ohio, closed a very satisfactory year December 31, 1925. Sales volume showed an increase over the previous year and the net operating profits, after making provision of $1,127,038.68 for depreciation and $510,000 for federal taxes and after interest and other charges amounted to $3,533,201.57, equivalent after preferred dividend requirements for the year to $10.74 per share on the no par common shares outstanding at December 31, 1925. The reserve for general contingencies was increased to $1,500,000 and $860,568.97 has been set aside out of net profits to accomplish this purpose, after which the net balance carried to surplus was $2,672,632.60. After payment of dividends on preferred stock of $542,591.67 and deduction of $364,053.00 for common dividends paid or declared, and after minor adjustments of $3,449.27 in connection with premium on retirement of preferred stock the remaining surplus on December 31, 1925, was $3,879,561.14.

The financial position of the company is very satisfactory. The ratio of current assets to current liabilities was 5.26 to 1. Current assets amounted to $14,085,490.71, including $1,280,087.85 cash. The company had no obligations to banks for borrowed money on December 31, 1925. The plant account has not changed materially during the year for the reason that the amount charged against net profits on account of depreciation of $1,127,038.68 substantially offset the expenditures on account of additions covering increased facilities.

During the year the stockholders authorized the change in the common shares from $100 par value to no par value shares and five of the latter were issued against one of the original shares. Outstanding at the close of the year were 260,088 common shares. During the past year, $4,000,000 par value of preferred stock, previously authorized, was sold and the proceeds have been reflected in the working capital.

New Incorporations

ARLINGTON RUBBER CO., May 5, 1926 (Massachusetts), capital $20,000 preferred stock, and eight hundred shares of common stock without par value. Incorporators and officers: Laurence M. Lombard, president; Donald C. Starr, treasurer; Dudley B. Wallace, clerk; all of 1 Federal street, Boston, Massachusetts. Principal office, Everett, Massachusetts. To manufacture and distribute rubber goods or articles in the production or composition of which rubber or any of its compounds may enter.

P. P. BELFORD & CO., INC., June 1, 1926 (New York), capital $50,000. Incorporators: P. P. Belford and E. M. Belford, both of 167 Marine street, City Island, New York; and Joseph A. Bambury, 798 East 3rd street, Brooklyn, New York. Principal office, 15 William street, New York City. Crude rubber brokers.

EVANS-BASS, INC., June 4, 1926 (New York), capital 500 shares no par value. Incorporators: H. A. Kiep, Jr., and W. H. Bass, both of 136 Liberty street, New York City; and T. K. Evans, Wayside Lane, Scarsdale, New York. Principal office, Manhattan, New York. Rubber products.

GREENFIELD BATTERY & TIRE SERVICE, INC., May 1, 1926 (New York), capital $20,000 divided into 200 shares of $100 par value. Incorporators and officers: Harry Kriksteine, president, 1037 Hoe avenue, New York City; Irving Yesk, vice-president, 1314 Grand Concourse, New York City; and Louis Eisenberg, secretary and treasurer, 52 East 117th street, New York City. Principal office, 2150 7th avenue, New York City. Tires, accessories, and batteries.

HERRON, RODENBOUGH & MEYER, INC., June 7, 1926 (New York), capital $250,000. Incorporators and officers: Joseph S. Rodenbough, president; John W. Herron, treasurer; Edward T. Meyer, first vice-president; Albert L. Meyer, second vice-president; Edison S. Lenhart, secretary; Frank Zech, assistant treasurer. Principal office, 25 Beaver street, New York City. To do brokerage business and trade in crude rubber, carbon black and allied products.

C. G. HILL & CO., INC., May 20, 1926 (New York), capital $10,000, par value $1. Incorporators: C. G. Hill, 507 E. 179th street, New York City; F. L. Byrne, Bayside, Long Island; and Naomi Ransom, 600 W. 183rd street, New York City. Principal office, Manhattan, New York. Crude rubber brokers.

MAJESTIC PACKING & RUBBER CORPORATION, June 3, 1926 (New York), capital $10,000. Incorporators: J. William Hill, 2 Rector street, and G. E. Schwarz, 287 Broadway, both of New York City; E. C. Schwarz, 343 Decatur street, Brooklyn, New York. Principal office, Manhattan, New York. Rubber goods.

SCHWARTZ & NAGLE CO., April 21, 1926 (New Jersey), capital $50,000. Incorporators: Whitney S. Noble, 189 Prospect avenue, Hackensack, New Jersey; Carl Schwartz and Richard J. Nagle, both of 698 Communipaw avenue, Jersey City, New Jersey. Principal office, 698 Communipaw avenue, Jersey City, New Jersey. To deal in automobile tires.

F. SPAN & SONS, INC., April 30, 1926 (New Jersey), capital $25,000. Incorporators: Paysach G. Span, William Span and Albert B. Span, all of 366 Washington street, Newark, New Jersey. Principal office, 972 Broad street, Newark, New Jersey. To deal in automobile tires and tubes.

SURE STEP RUBBER CO., INC., May 21, 1926 (New York), capital 1,500 shares, no par value. Incorporators: Joseph Contento, 61A North Swan street; Ruth K. Child, 11A Woodlawn avenue, both of Albany, New York; and H. Fereby Murphy, 103 West 74th street, New York City. Principal office, Albany, New York. To manufacture rubber goods.

THIEL BROTHERS TIRE CO., April 20, 1926 (Wisconsin), capital $10,000, divided into 100 shares. Incorporators: Otto B. Thiel, 654 10th avenue; Ray W. Thiel, 712 10th avenue, both of Wauwatosa, Wisconsin; and Henry G. Steinberg, 891 Booth street, Milwaukee, Wisconsin. Principal office, 2123½ Vliet street, Milwaukee, Wisconsin. To deal in tires, accessories, etc.

UNITED SERVICE STATIONS, May 25, 1926 (New Jersey), capital $125,000. Incorporators: William F. Osborne, 25 Van Cortlandt Place, Kearny; William T. Bushby, 73 Cleveland Terrace, East Orange; and Robert B. Bushby, 3 Grant avenue, East Orange, all of New Jersey. Principal office, 101 Main street, Passaic, New Jersey. To deal in tires and other automobile supplies.

A. A. WHITE COMPANY, INC., April 17, 1926 (Rhode Island), capital 100 shares of common stock, without par value. Incorporators: Ernest W. S. Higgins, Ernest I. Manning, Frank E. White, Sidney G. Stamp, Jr., all of East Providence, Rhode Island; and Edward H. Adams, of Cranston, Rhode Island. Principal office, Providence, Rhode Island. To manufacture, buy and sell rubber stamps, seals, etc.

ZEPLEN TIRE CORPORATION, May 14, 1926 (Washington), capital $300,000. Incorporators: A. H. Shoemaker, president; C. H. Shields, secretary; and L. P. Bennett. Principal office, Seattle, Washington. To manufacture and deal in automobiles and all parts and accessories thereof. Above corporation changed its name from Semitire Manufacturing & Sales Co.

The Rubber Trade in the East and South

The directors of the Rubber Association of America recently elected Paul W. Litchfield, new president of Goodyear, as a director of the association to fill the vacancy caused by the death of George M. Stadelman. At the same time Mr. Litchfield was chosen as second vice-president to fill the vacancy caused by the election of C. B. Seger, chairman of the board and president of the United States Rubber Co., to the first vice-presidency of the association. Mr. Seger has for the past three years served as second vice-president.

Edward V. Peters has resigned as general sales manager of The New Jersey Zinc Co., 160 Front street, New York, N. Y., his duties with the organization being at present assumed by A. P. Cobb, vice-president; and J. H. Janeway, assistant to the vice-president. Mr. Peters had made many friends during his long association with the company, and had held various positions of responsibility since the year 1906.

The Watson-Stillman Co., specializing in hydraulic machinery for the rubber industry, has moved its New York City offices from 50 Church street to 75 West street.

On and after June 1, 1926, the business formerly conducted by L. W. Dumont & Co., Inc., 132 Front street, New York, N. Y., will be continued at the same address under the firm name of L. W. Dumont & Co. Copartners in the reorganization are: Louis W. Dumont, Patrick A. Murphy, and James R. Shannon.

The Crude Rubber Brokerage Co., Inc., removed its offices on May 29 from 123 Front street to 50 Broad street, New York, N. Y. Richard H. Toeplitz is president and treasurer.

F. W. Dunbar & Co., 7 Water street, New York, N. Y., crude rubber importers, announce a change in the company's trade name to F. W. Dunbar & Co., Inc.

The Asia Drug Co., Inc., 236 Water street, New York, N. Y., has recognized the validity of United States Letters Patent 1,149,580 as owned by The Grasselli Chemical Co., New York, N. Y., covering the use of Hexamethylenetetramine as a rubber vulcanization accelerator, and is therefore withdrawing from the Hexamethylenetetramine market.

The Goodyear Tire & Rubber Co., Akron, Ohio, is completing a new seven-story warehouse, at Eleventh avenue and Fifty-eighth street, New York, N. Y., which will have many unusual facilities for handling goods. The general New York City offices of the company as well as its export branches will be located on the first and second floor of the building. The Goodyear organization is also erecting a new branch building in Jamaica, L. I.

The business in crude rubber brokerage formerly conducted under the name of H. H. Henderson, Inc., will be continued as Henderson Brothers & Co., Inc., 60 Beaver street, New York, N. Y. M. C. McComas has been admitted to the organization as secretary.

The Meadowcroft Balloon & Airship Co., Inc., Hammondsport, N. Y., designer of "Lighter-Than-Air" craft exclusively, reports a steady construction of pilot and sounding balloons for the Weather Bureau and the Signal Corps. Norman Meadowcroft is president of the company.

H. F. Van Valkenburgh, purchasing agent of the Dunlop Tire & Rubber Co., Buffalo, New York, has been recently elected assistant secretary and treasurer of the organization.

L. J. Waldron, sales manager of the Pennsylvania Rubber Company of America, Inc., Jeannette, Pennsylvania, recently returned from a business trip through the West, where he visited Chicago, Minneapolis, Sioux Falls, Des Moines, Kansas City, Dallas, and St. Louis. Mr. Waldron reports good business conditions in the sections visited, and a satisfactory demand for the new Pennsylvania balloon tire now being placed on the market.

H. W. Butterworth & Sons Co., York and Cedar streets, Philadelphia, Pennsylvania, manufacturer of machinery used by the rubber industry, has taken over the plant of the Klauder-Weldon Dyeing Machine Co., Bethayres, Pennsylvania, the new acquisition to be maintained as the Klauder-Weldon Division of the H. W. Butterworth & Sons Co. William E. H. Bell, formerly vice-president and general manager of the Klauder-Weldon Co., will continue to serve in the last-mentioned capacity.

Announcement has been made of the consolidation of The New Haven Sherardizing Co., Hartford, Connecticut, and the Metals Protection Corporation, Indianapolis, Indiana, in the establishment of The Chromolite Process Corporation. The new concern which will manufacture Chromolite plating equipment for the rubber industry, intends to distribute its plants throughout the United States, the first division to be established at 1033 South High street, Akron, Ohio. Operations under the management of James Verheyden will begin August 1.

J. R. Elliott, Jr., is now in charge of the southern division of The Cord Tire Corporation, Chester, West Virginia, and is making his headquarters in Atlanta, Georgia. On February 1, A. F. Alexander began his duties as general sales manager of the company.

A slight damage by fire to a warehouse maintained at Charlotte, North Carolina, by the Michelin Tire Co., Milltown, New Jersey, was fully covered by insurance, and shipments from the warehouse were again made the day following the fire.

The first unit has been let for the mills to be constructed at Thomaston, Georgia, by the Hightower interests, the proposed great plant being planned to supply tire fabric to The B. F. Goodrich Rubber Co., Akron, Ohio. The $500,000 contract for the new building, to be known as the "Martha Mills," represents only the beginning of a development program which involves the expenditure of approximately $3,000,000. Plans call for the completion of the new unit by the first of next year, while machinery and other equipment are to be installed during October.

Lake Jones is now one of the district managers for the Century Rubber Works, 54th avenue and 18th street, Chicago, Illinois, and is making his headquarters at Atlanta, Georgia. The Century organization specializes in the manufacture of standard quality automobile tires.

Since purchasing a unit of the Cedartown Cotton & Export Co., Cedartown, Georgia, The Goodyear Tire & Rubber Co., Akron, Ohio, has enlarged its newly acquired plant by the installation of additional spindles, bringing the number up to 30,000, while the expected plant production will reach 18,000,000 pounds of tire fabric annually. George L. Parmenter is superintendent of the new division, the name of which has been changed to Goodyear Clearwater Mills.

The McClaren Tire Sales Co., 512 West Adams street, Jacksonville, Florida, is a distributer throughout the state of Florida of casings manufactured by the McClaren Rubber Co., Charlotte, North Carolina, the goods handled including the Autocrat, Allroad, and McClaren tires. A. Parmalee is covering much of the Florida territory for the distributing organization.

Financial Reorganization of Tucker Corporation

Completion of its new financial program has been announced by the Tucker Rubber Corporation, Buffalo, New York. About two years ago the organization took over the mechanical rubber department of the Fisk Rubber Co., Federal Division, the Tucker plant at Buffalo now further specializing in the manufacture of marbleized rubber flooring. The company also purchased last year the factory of the New York Rubber Co., Beacon, New York, which is now operated as a subsidiary, output at the latter plant including Wiccapee belting, Dutchess steam hose, dredging sleeves, and other heavy mechanical rubber goods. The reorganization of the company's finances, in which W. G. Andrews, newly elected chairman of the executive committee, has been instrumental, permits the concern to extend operations at both the Buffalo and Beacon plants.

Other officers of the Tucker company include: A. Y. Tucker, president; S. E. Abramson, vice-president in charge of sales; and L. D. Bigelow, general factory manager.

The Rubber Trade in New Jersey

During June all branches of the New Jersey rubber industry have shown considerable improvement over the previous month and the manufacturers are now confident that the remainder of the summer months will find them quite busy. This is particularly true of Trenton. There have been rumors of another cut in the prices of tires and tubes, but tire manufacturers state that there is a slight possibility of another drop but this will not occur before about August 1. The production of mechanical rubber goods continues good, while hard rubber production is reported as being a little slack. There has also been an improvement in the output of rubber soles and heels.

The Rubber Manufacturers' Association of New Jersey held a meeting recently and discussed business conditions. The association will not meet again until early next fall. The organization has proven of much benefit to the members, who gather together once a month at luncheon and talk over matters.

The Murray Rubber Co., Trenton, New Jersey, which experienced a dull season after having lost a large order from a mail

ANNUAL DINNER OF FARREL VETERANS

The Veterans' Association of the Farrel Foundry & Machine Co., Ansonia, Connecticut, manufacturer of rubber machinery, recently held its annual dinner, many of the employes and executives of the organization attending. The principal address of the evening was made by the Reverend Franklin J. Kennedy, who took as his subject "Stability and Character," two very important factors in the upbuilding of industry, communities, and citizens.

The Veterans' Association is at present composed of 121 employes who have been with the company for twenty-five years or more. Only thirty-one of these are pensioners, while the average length of service of members of the association is thirty-three years.

Plant of the Farrel Foundry & Machine Co., Ansonia, Connecticut

order house, is now operating three of its heaters and has two shifts of tiremakers at work again. An official of the company states that the plant will be running twenty-four hours a day very shortly and that the concern is behind 26,000 tires and 30,000 tubes. All the old hands are being placed at work. The mechanical business of the company shows a 15 per cent increase over last year.

The Combination Rubber Co., Trenton, New Jersey, reports increased business with a good demand for Viking tires and tubes.

The Hamilton Rubber Manufacturing Co., Trenton, New Jersey, is quite busy in the production of Victor-Springfield tires and tubes.

The Ajax Rubber Co., Trenton, New Jersey, reports that the production of tires and tubes is about 85 per cent capacity and that conditions are much improved over last month.

The Pierce-Roberts Rubber Co., Trenton, New Jersey, whose entire plant was destroyed by fire early last spring, has one department in operation again with a score of employes working. The company announces that the entire factory will be in operation within a few weeks.

Whitehead Brothers Rubber Co., Trenton, New Jersey, reports increased business in all departments, with enough orders on hand for a busy summer.

Thomas H. Thropp, formerly president of the Trent Tire Co., and treasurer of the John E. Thropp & Sons Co., Trenton, New Jersey, has provided a fund for the awarding of gold, silver and bronze medals to students of the Trenton School of Industrial Art who best apply the principles of art.

The Pocono Rubber Cloth Co., Trenton, New Jersey, is considerably behind in orders for rubber golf bags and rubber cases for tennis racquets. The summer season has caused a large demand for these two articles. The company is also busy in the department where cloth for automobile tops is manufactured.

The Vulcanized Rubber Co., Morrisville, Pennsylvania, manufacturer of hard rubber goods, reports good production in some lines, while others are dull. The concern does not expect to be running full handed again until early in August.

Harold Rogers, formerly superintendent of the Empire Tire & Rubber Co., Trenton, New Jersey, has been appointed manager of the rubber department of the R. M. Hollingshead Co., Camden, New Jersey. Mr. Rogers was connected with the Empire Company for ten years and was president of the Rogers Rubber Co., dealer in automobile tires and mechanical rubber goods, Trenton, New Jersey.

Appointment of a receiver for the Enterprise Rubber Co., Yardville, New Jersey, is asked for in a petition filed in the Court of Chancery by Joseph Freiberg, of Philadelphia, treasurer and stockholder of the concern. Assets of the company are placed at $10,000 and the liabilities at $17,000. The authorized stock of the corporation, which is engaged in the manufacture of rubber sundries, is declared to be 300 shares of $100 par common stock.

Bergougnan Plant Sold

The plant and equipment of the Bergougnan Rubber Corporation, Trenton, New Jersey, were sold at receiver's sale on June 18 by Charles E. Stokes, receiver. A syndicate headed by William A. Weinmann, of Trenton, purchased 7 buildings and 4¾ acres of land for $90,000. The same concern also purchased some land along the Pennsylvania Railroad, which the rubber company held for reserve purposes for $13,000. The machinery and equipment were sold to different purchasers for $41,373, making a total of $151,373. The sale will have to be confirmed by the Federal Court. The Bergougnan company was incorporated in 1919 by a group of French tire making experts, including Jules Beethier, Jean Grenier and Gaston Tisné. The company prospered until 1923 when a receiver was appointed.

A Leader in the Rubber Industry

Associated for more than a quarter of a century with the Fisk Rubber Co., Chicopee Falls, Massachusetts, where he has continued to hold positions of great responsibility, Edward H. Broadwell is today considered an authority in his particular line of work, and one of the leaders in the American rubber industry.

E. H. Broadwell

Born in St. Louis, Missouri, and educated in the schools of that city, he began at the early age of thirteen to work for the National Lead Co., his first connection with the rubber industry being in 1900, when he was placed in charge of the Detroit branch of the Fisk Rubber Co. From September, 1910, to February, 1913, he was vice-president of the Hudson Motor Co., returning, however, in June, 1913, to the Fisk organization, where he was appointed vice-president in charge of sales. No small part of the Fisk Company's success is due to the foresight and knowledge of business affairs displayed by Mr. Broadwell during his long association with this well-known concern.

He is also recognized by the Rubber Association of America as a man of importance, having been elected in February, 1924, to fill a vacancy in the association's board of directors, and having served for some time as a member of the executive committee of the Tire Manufacturers' Division of the Rubber Association. Taking also an active part in the affairs of the Motor and Accessory Manufacturers' Association, Mr. Broadwell served as a director from 1915 to 1921, and as president in 1921 and 1922.

At the present time he is vice-president and general manager of the Chicopee Falls division of the Fisk Rubber Co., and is president of the Fisk Tire Co. A Mason, he is also a member of the New York, Chicago, and Detroit Athletic Clubs; the Lotos Club and The Lambs of New York City; the Toledo Club, Toledo, Ohio; the Springfield Country Club, Springfield, Massachusetts; the Longmeadow Country Club, Longmeadow, Massachusetts; the Westchester Biltmore Country Club, Rye, New York; and the Miami Biltmore Country Club, Miami, Florida.

The Rubber Trade in Massachusetts

Shutdowns for periods from one week to three have been announced by all of the local footwear mills in accordance with the customary policy of having the personnel take their annual vacations at one time. Although the two-week layoff is regarded as normal, present business conditions in the footwear trade are well ahead of a year ago owing to the increased volume of winter business. The summer tennis season has been slowed up by the prolonged spell of unseasonal cold weather which has affected all lines of wearing apparel.

The Hood Rubber Co. will close in all departments for one week, August 1-7 inclusive; Boston Rubber Shoe Co., American Rubber Co., United States Rubber Co. subsidiaries, will shut down from July 19 to August 8 inclusive; Converse Rubber Shoe Co. will close in the footwear department from July 12 until August 1, although present indications are that the tire plant will run full time throughout this period. The Firestone-Apsley plant in Hudson will close for one week also. The Fisk Rubber Co. is running full time.

General conditions throughout the rubber trade point to improvement. Reclaimers report increased inquiries and orders, indicating that the slackness due to manufacturing plants being on part time

has been taken up, and good business is said to be right around the corner. Heels and soles, as well as mechanicals, are planning a busy summer.

James A. Walsh has succeeded H. R. Marsh as agent for the Waltham Bleachery & Dye Works, who have been dyeing sheetings and ducks for the rubber trade a number of years in this section.

F. V. Larkin, formerly with the Converse Rubber Co. and W. B. Pratt, Inc., is now representing Roessler & Hasslacher in New England on accelerators with headquarters in Springfield.

Distribution of New Jersey Zinc Co.'s zinc oxide and lithopone in New England is handled from the Boston office of David Randall & Co. at 55 Kilby street. Ralph E. Potter is sales manager.

The Stevens, Stearns Motor Car Co., Inc., Somerville, Massachusetts, has been petitioned into bankruptcy by the Fisk Tire Co., New York, with claims of $2,277.00.

Due to increasing business, the Clifton Manufacturing Co., Jamaica Plain, Massachusetts, specializing in proofed fabrics, will enlarge its plant through the erection of another building. Frank C. Tenney is president.

The Boston office of the United States Rubber Co. has been removed from 130 Essex street to 210 Lincoln street, the division taking care of the jobbing trade of New England, New York, Pennsylvania, Ohio, Indiana, and Michigan. E. L. Phipps, eastern selling agent, and W. H. Palmer cover the territory mentioned in the interests of the company's footwear departments.

J. H. Mason has resigned as general manager of the Vulcan Proofing Co., Brooklyn, New York, and with J. C. Haartz has established the Haartz-Mason Rubber Co., Newton Upper Falls, Massachusetts. The plant will be equipped with modern machinery for the manufacture of rubber proofed goods, etc.

Charles R. Boggs, chemist of the Simplex Wire & Cable Co., Boston, Massachusetts, in connection with a European trip this summer has accepted an invitation to lecture in London before the Institution of the Rubber Industry on the use of selenium for vulcanizing rubber, a method of which he is the inventor.

Rubber Chemist and Chemical Engineer

Carroll C. Davis, chief chemist and chemical engineer of the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, is a Bostonian, born in September, 1888. During his college course at Dartmouth he specialized in chemistry, graduating in 1911. For the next 3 years he was a student at the Massachusetts Institute of Technology where he specialized in chemical engineering and graduated in 1914.

Carroll C. Davis

In the summer of the same year he entered the employ of the Boston Woven Hose & Rubber Co., doing routine chemical work. From this laboratory experience he was transferred first to the goods inspection department and became chief inspector of finished products. Next he was placed in charge of the physical laboratories of the plant as supervisor; later as head of the production department, Mr. Davis was responsible for the output of goods and the planning of mill and calender room equipment.

Well qualified by his long practical training in charge of this work Mr. Davis was made assistant superintendent of the technical department, having charge jointly of the work of supervising and developing specifications, processes and finished goods. Thus, as chief chemist and chemical engineer in charge of the plant laboratories, he has been engaged in an intensive way in the study of materials, processes and various research problems of a chemical and engineering nature.

Mr. Davis has published various technical papers chiefly relating to rubber. He is also joint author with John M. Bierer, technical superintendent of the Boston Woven Hose & Rubber Co., of the oxygen bomb aging test and an important study of the economic use of reclaim as a substitute for new rubber. Both of these contributions to the technology of rubber have proved of widespread interest and value in current rubber manufacturing practice. He is assistant editor on rubber and allied substances of *Chemical Abstracts*, and also special abstractor for the same journal of articles in all branches of chemistry appearing in the Italian language.

Mr. Davis relieves the strain of scientific work by the out-of-door hobbies of walking and camping with mountain climbing as a specialty, presumably as an Appalachian. He is also a member of the American Chemical Society.

The Rubber Trade in Ohio

After a period of hesitancy and temporary depression during the spring, Akron authorities agree that the rubber industry has definitely turned the corner for the better. Predictions are being made on every hand that the next few months will witness new high records in sales and production. The warmer weather, with increased buying from retail dealers, has done much to dispel the gloom of a few weeks ago, and optimism is now the dominant note in the industry.

Operations of Ohio rubber factories are gradually increasing, as a result of improvement in automobile tire sales. In the Akron district more than 100,000 tires a day are being manufactured, compared with 85,000 to 90,000 during the low period this spring. While manufacturers are still carrying rather heavy stocks of tires, dealers' reserve stocks are lower than last year. This condition has resulted from the backward spring and uncertainty over prices.

Although the rubber companies are still operating with rubber costing from 60 to 70 cents a pound, generally speaking, they have been able to work off a great deal of their high cost rubber within the past few months. Fearing a possible price reduction of tires, dealers have not been restocking to any extent, but their stocks are so low that necessary reorders are steadily reducing inventories.

The Goodyear Tire & Rubber Co., now the world's largest tire producer, has been operating nearer capacity levels at its Akron plant than most of its leading competitors. During June, production was at the rate of 35,000 to 38,000 tires a day, which is expected to be raised to more than 40,000 next month. The company has been helped materially by receipt of some big orders recently from Sears, Roebuck & Co. and several large automobile manufacturers. Nearly 5,000 tires a day are being shipped to the mail order company alone.

Officials at the Firestone, Goodrich, Miller and General plants also report an increase in sales of from 15 to 20 per cent during June. A heavy demand has developed for the cheaper priced line of tires, especially in the smaller Ford and Chevrolet sizes.

Improvement is also noted in rubber footwear and mechanical rubber goods lines. Production of "Zipper" boots and other footwear is being increased at the Akron Goodrich plant for fall delivery.

While the first half of the year will probably show few reports of good profits, indications are that the rubber companies will announce substantial earnings in the last six months. Previously established reserves are expected to make up for losses due to the decline in crude rubber inventories. Some manufacturers are even predicting a shortage of tires when the summer touring season

gets fully under way. Sales are said to be between 6,000,000 and 7,000,000 tires below last year's records.

Mid-year inventories were taken by most Akron rubber factories during the closing days of June.

On the basis of business so far this year, the Seiberling Rubber Co., Akron, Ohio, will break all previous records in sales and tire production. For the first five months of 1926, sales show a 40 per cent increase over the same period in 1925. Gross business for June was approximately $1,900,000. More than 5,000 dealers are selling Seiberling tires. The company employs 1,300 workers, and is manufacturing 4,200 tires and 5,000 tubes a day, which production is being increased.

The Stardant Novelty Co., Akron, Ohio, manufacturer of rubber novelties and druggists' sundries, is building a new, two-unit factory to replace the one destroyed by fire about six weeks ago. The main structure is to be 60 by 100 feet, two stories high, and the other unit 30 by 35 feet on the foundation, housing the boiler and power plant. Output is to be more than doubled with the completion of the new factory about August 1. Products include rubber aprons, water bottles, druggists' sundries, rubber novelties, etc. An extensive mail order business is to be carried on. Owners of the Stardant concern are: F. J. Unger, A. L. Sluthard and R. H. Hinds.

The Goodyear Tire & Rubber Co., Akron, Ohio, suspended operations June 28-29 for inventory taking. Production was resumed June 30, but will continue on a curtailed basis for the remainder of the week and over the holiday. The factory will resume on a full time basis July 6. Curtailment of operations after completion of the inventory will permit a full week's vacation for veteran workers. Nearly 4,000 employes, with five years or more service, are planning to take vacations, and "homecoming week" will be observed in many parts of Ohio, West Virginia, Pennsylvania and surrounding states. Never before have so many employes at the plant taken vacations in so short a period.

Employes of the mechanical department, Firestone Tire & Rubber Co., Akron, Ohio, held their annual outing June 19 at Geauga Lake, near Akron. About 3,000 workers and their families attended. Among Firestone executives present were: J. W. Thomas, vice-president and general manager of the Akron plant; M. E. Aake, factory manager; R. W. Murphy, superintendent of labor, and M. E. Hooner, superintendent of engineering.

Arthur O. Roberts has been appointed manager of advertising and sales promotion at the Star Rubber Co., Akron, Ohio. He was formerly associated with prominent automobile companies in advertising and dealer development work. For the past few months he has been connected with the advertising department of the Miller Rubber Co.

The India Tire & Rubber Co., Akron, Ohio, has found it necessary to install additional equipment and so enlarge its factory that the present plant capacity is 30 per cent greater than it was in 1925. Joseph A. Andreoli has recently been made export manager. For six years previously he had been associated with the Goodyear Tire & Rubber Export Co.

W. H. Fleming, who since 1912 has been connected in various capacities with the Goodyear Tire & Rubber Co., Akron, Ohio, has been appointed division superintendent in charge of all tire departments at Plant Two.

The Erie Rubber Corporation, Sandusky, Ohio, reports an especially good demand for Erie heavy duty cord tires and balloon casings. The factory output is 750 tires and 1,000 tubes daily, but plans are under consideration for the installing of additional equipment which will bring production up to between 1,000 and 1,200 tires daily. Joseph M. Dine is sales manager.

A plant addition representing some 3,500 more square feet of floor space is being built by The Giant Tire & Rubber Co., Findlay, Ohio, while an enlargement of the company's office building permits an increase in the staff of almost 100 per cent. Sales during the first five months of this year are 90 per cent more than for the same period of last year, while May represented a record month for sales volume. C. E. Hart is president of the company.

The General Tire & Rubber Co., Akron, Ohio, will manufacture a full line of high grade repair material and accessories, as the result of increased space made available for this purpose by factory additions. Frank P. Harrington is manager of repair material and accessory sales, with headquarters at the Akron factory.

The McKinley Rubber Co., Sebring, Ohio, successor to the Sebring Tire & Rubber Co., will soon resume operations. C. O. Tice, production manager, states that the company will manufacture stair pads, rubber soles and heels, in addition to tires and tubes.

The plant of the Akron Rubber Reclaiming Co., Barberton, Ohio, will operate day and night, seven days a week, according to William Welch, general manager, who recently returned from a business trip through the west.

The Thermo Instrument Co., 572 South High street, Akron, Ohio, manufacturers of temperature controllers, pressure controllers, and motor valves, has developed a new balance draft controller for power plants.

William O'Neil Believes Tire Prospects Are Good

In a recent statement, William O'Neil, president of the General Tire & Rubber Co., Akron, Ohio, says that the demand for automobiles and automobile tires is greater than ever before.

"The saturation point in automobiles has faded away into the future, and car production during the past six months has been larger than any similar period in history. The tire industry got away to a bad start, because of the unusually severe and lingering winter, which delayed driving all through the north. Since the weather relented, passenger cars, trucks and buses have been making up for lost time, and plenty of tires are being used and bought now. The worst is over in the tire industry and prospects are all for a phenomenal second half year. Our own factory is turning out more tires daily than any day last year except one, and demand is exceeding output."

Midwestern Notes

Francis T. West, who for the past twenty-five years has been associated as western manager with The Watson-Stillman Co., 75 West street, New York, N. Y., has retired, and has been succeeded by J. F. Coyne. In the handling of the hydraulic machinery manufactured by the Watson-Stillman organization, Mr. Coyne will make his headquarters at 549 West Washington Boulevard, Chicago, Illinois, and will be assisted by James T. Lee and John O. Clark.

Changes in the personnel of the Mohawk Rubber Co., Akron, Ohio, include the appointment of N. E. West, who is doing special work with branches and salesmen; and also the appointment of J. J. Pie as manager of the company's Chicago branch, succeeding S. B. Morrison, the latter to have charge of the Kansas City and Tulsa divisions.

Melcin R. Mead has been placed in charge of the branch at Detroit, Michigan, maintained by the Firestone Tire & Rubber Co., Akron, Ohio. Mr. Mead has been connected with the Firestone organization for a number of years.

The Nelson Tire & Radiator Co., New Richmond, Wisconsin, has opened a second branch at Rochester, Minnesota, in addition to one already established at Rice Lake, Wisconsin. The organization, which is headed by H. R. Nelson, handles Goodyear tires exclusively.

J. A. Kendall, specializing in crude and reclaimed rubber, accelerators, pigments, and rubber substitutes, has main offices at 524 Second National Building, Akron, Ohio, and has also established another division at 30 North La Salle street, Chicago, Il-

linois. The New York City office, where crude rubber only is handled, is at 25 Beaver street.

John Owen has been appointed receiver for the Steinbrenner Rubber Co., Noblesville, Indiana, manufacturer of tires and tubes. Plans are under consideration for the disposal of the already manufactured tires, and it is believed that the company's affairs can be put on a basis so that all creditors can be paid in full, and the business eventually revert to the stockholders.

W. C. Winings, who first became associated in January, 1916, with the Goodyear Tire & Rubber Co., Akron, Ohio, has been placed in charge of that company's branch at Indianapolis, Indiana.

F. Bierman & Sons Metal and Rubber Co., 1008-22 North Twelfth street, St. Louis, Missouri, scrap rubber dealer, is erecting an addition to its plant which will furnish 20,000 more square feet of floor space. The property has also been enlarged through the purchase of a plot of ground measuring 168 by 100 feet. F. Bierman is president and S. L. Bierman is secretary and treasurer.

Corduroy Tire Co. Prosperous

The Corduroy Tire Co., Grand Rapids, Michigan, is working at capacity with night shifts in all departments. Due to the recent opening of a new addition, housing the tube and compounding divisions, the organization has been able practically to double the plant output. In April the capitalization of the company was increased to $6,000,000, the second time since the establishment of the business in 1919, when it was capitalized for $1,000,000. Later the figure was raised to $3,000,000, this again being doubled as a result of the April meeting.

Executives of the organization include: A. L. Brown, president; Clifton G. Dyer, vice-president; C. S. Dickey, treasurer and general manager; M. J. Goldner, secretary; and B. T. Schall, assistant treasurer.

The Rubber Trade on the Pacific Coast

In nearly all lines, June sales of rubber goods in the Pacific Coast territory improved perceptibly over the preceding month. Branch houses and jobbers attributed the improvement chiefly to retailers finding their stocks too depleted to warrant them in waiting longer for a drop in prices of rubber manufactures. Buyers of the higher grade tires still show a hesitating spirit, although dealers caution them not to count too much on recent low prices on crude rubber. Some leaders in the trade argue urgently for a 5 or 10 per cent cut in prices to stimulate sales, although some advocate, as a more effective trade stimulant, an announcement of an equal increase. Sales of low price and small-size tires are well sustained. Distributers of vulcanizing apparatus and makers of tire repairing stocks report sales as unusually good, implying that considerable tire conservation is being practiced.

The Pioneer Rubber Mills, San Francisco, California, are building a large power house addition and will install new boilers and add other equipment to the plant at Pittsburg, California. All departments are very busy, some on 24-hours' schedule. In addition to a steadily growing output of light and heavy hose, belting, and general mechanical rubber goods, the Pioneer company produces hard rubber battery jars for eastern battery manufacturers who find an advantage in having the parts made and assembled on the Pacific Coast.

The Columbia Tire Corporation, Portland, Oregon, according to Superintendent R. H. Brown, is busier than ever. A considerable increase has been made in equipment and many added to the working force recently. In addition to the long-term contract with the Ford Co., for 200 C-T-C tires a day, some good contracts have just been made with several stage companies after severe tests.

The Columbia company is also making and marketing the Lewis rubber shock absorber, which was invented by R. F. Lewis, who is supervising production of this accessory.

The Eno Rubber Corporation, 1026-1032 South Los Angeles street, Los Angeles, California, has bought the entire plant of the Hendrie Rubber Tire Co., Torrance, California, and plans to move into the factory about the middle of July. The Eno company will not use the tire making equipment, confining itself entirely to the manufacture of mechanical rubber goods, repair stocks, automobile accessories, etc. Apart from the opportunity to produce goods more cheaply and efficiently, the new factory will afford better working conditions for the operatives than have been possible in the old plant.

The Spreckels "Savage" Tire Co., Main and Sicard streets, San Diego, California, is working close to capacity, according to General Manager Landis D. McConnell. New equipment is being added, and the factory being run on a 24-hour daily schedule to provide an average daily outturn of 1,000 tires and 3,000 tubes.

The Goodyear Tire & Rubber Co., (California), maintained a booth, displayed numerous samples and also a large oil painting of its plant, at the annual convention in Los Angeles of the National Association of Purchasing Agents. The company also entertained seventy-five buyers at the factory. Mid-month production averaged 6,500 tires and 5,500 tubes daily. The new wing just added to the factory is being temporarily used for storage with considerable saving in rental of warehouses leased elsewhere.

A large brick warehouse is being added to the Los Angeles branch of the Pioneer Rubber Mills on East Third street, which will greatly improve service in the southwestern territory. The new structure, which is to be served with a spur from the Santa Fé Railroad, will be ready for stocking by August 1. President Towne of the Pioneer company was a recent visitor.

The Miller Rubber Co., Akron, Ohio, recently supplied a Los Angeles newspaper with 10,000 toy balloons, which were used in an advertising scheme. The balloons were inflated with hydrogen, children attached tags bearing names and addresses, and at a given signal in Exposition Park set the gas-filled rubber spheres free. Prizes were given for balloons which went farthest.

George Evans, of Redondo Beach, California, is arranging for the manufacture of a swimming sleeve life preserver invented by him. It is said to have been successfully tested by life guards and other expert swimmers. The sleeve is inflatable and is said to embody new principles in life preserving devices.

The Samson Tire & Rubber Corporation is adding a new machine shop at its plant in Compton, California. A warehouse of similar construction was recently completed at the same factory. A 5-ton traveling crane will be one of the important features of the machine shop.

Recent visitors on the Pacific Coast were F. M. Hoblitt, vice-president of the Ajax Tire Co., New York, N. Y., and W. E. Fouse, vice-president of the General Tire & Rubber Co., Akron, Ohio.

The Rubber Products Company of America, which will utilize the Willard processes for devulcanizing and regenerating rubber, broke ground on June 12 for a $250,000 factory at Bates City, adjoining Hawthorne and near Los Angeles. Attending the ceremony were many prominent business men of the latter city. One of the chief products of the concern will be rubber floor covering made in large part from discarded tire casings. A Los Angeles office is maintained at 117 West 9th street.

P. E. Myers, who has been manager of the branch maintained in Seattle, Washington, by the Kelly-Springfield Tire Co., Cumberland, Maryland, is now in charge of the San Francisco division, being succeeded in Seattle by Frank B. Morrow. W. N. Kidwell, who was formerly in charge of the San Francisco branch, will conduct his own business in San José, California, as a Kelly-Springfield dealer.

REPLETE WITH INFORMATION FOR RUBBER MANUFACTURERS.—H. C. Pearson's "Crude Rubber and Compounding Ingredients."

The Rubber Trade in Canada

Reports from manufacturers and hardware jobbers indicate that the backward weather has had no ill effect on sales of garden hose. Orders have been unusually heavy and manufacturers are experiencing some difficulty in keeping production up to the demand. A feature of garden hose sales this year is the increasing popularity of the better grades. Three-ply garden hose and half-inch corrugated cord hose are big sellers. Athletic rubber sports footwear is selling well and with warmer weather in sight sales will no doubt be increased considerably.

The first shipment of cotton to Canada direct from Egypt will be sent to the Wabasso Cotton Co., Ltd., Three Rivers, Quebec, by Emile N. Sharteni, a Cairo exporter. Mr. Sharteni has been in Canada investigating the market for cotton seed and on his return will make an effort to interest Egyptian manufacturers in exporting direct to Toronto and Montreal.

Between 225 and 250 tire repair shop owners and employes from all over the Province of Ontario recently heard a lecture in Toronto on a new method to repair high pressure and balloon tires given by the O. G. Stinchombe, tire repair expert, from the Goodyear Tire & Rubber Co., Inc., Akron, Ohio. The lecture was preceded by a dinner at the Prince George Hotel, Toronto.

Johnny Miles, Sydney Mines, Nova Scotia, who recently won the Boston Marathon for which he established a new world's record, wore a pair of rubber-soled shoes manufactured by the Columbus Rubber Co., Montreal, Ltd.

The Canadian I. T. S. Rubber Co., Ltd., West Toronto, Ontario, has opened a Pacific Coast branch in Vancouver, British Columbia, the manager being John M. Adolph, who will also represent his company in the province of Alberta.

Motorists using the province of Ontario highways are furnished with a splendid 40-page guide and map book just published by the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, entitled Dunlop Trail (Ontario), 1926.

In the passing of John Monaghan, the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, loses one of its oldest and most valuable employes. Mr. Monaghan, who was chief stockkeeper, joined the company in 1901 and had virtually completed a quarter century's service.

E. B. Ryckman, K. C. M. P., and president of the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, is chairman of the Special Subscriptions Committee in the campaign to raise half a million dollars for a Toronto hospital.

A new syndicate has taken over the plant and assets of the Gregory Tire & Rubber Co., Ltd., Port Coquitlam, British Columbia, and formed the Gregory Tire & Rubber, 1926, Ltd., with a paid-up capital of $400,000. The directorate consists of the following: R. L. Cliff, president; A. M. Dollar, vice-president; R. E. Jamieson, managing director; E. A. Riddell, secretary; and J. H. McDonald, T. D. Trapp, F. E. Birke, W. C. Shelly, and Hugh Dalton. The new company intends to begin operations at once.

The window of the Province of Ontario government's offices in London, England, recently contained exhibits furnished by Gutta Percha & Rubber Ltd., Toronto, Ontario, consisting of rubber footwear, tires, belting and various other rubber specialties manufactured by this firm, the whole making a most attractive display.

The American Wringer Co., Ltd., of Canada, Farnham, Quebec, has been incorporated to carry on the extensive Canadian business heretofore handled in the Dominion of Canada for the American Wringer Co., Woonsocket, Rhode Island. The factory of the Canadian company, including a plant for the manufacture of rubber-covered rolls, will be located at Farnham, Quebec, and operations commenced early in June.

The L. E. Waterman Co., Ltd., Montreal, is advertising Ripple-Rubber, a new pen "designed with a series of cardinal and black ripples resembling the marks left by wavelets on the seashore."

In line with the forward strides of the automobile business in Vancouver, British Columbia, the Rand Tire Co., Ltd., has opened its new quarters at 1399 Granville street. The company's plant has been improved and facilities for taking proper care of an increasing volume of business have been added. The company handles the Goodrich line of tires and other Goodrich products.

Dr. G. S. Whitby, professor of organic chemistry at McGill University, Montreal, recently delivered an address on "Recent Advances in the Chemistry of Rubber" before the Vermont section of the American Chemical Society at Burlington, Vermont.

R. P. D. Graham of the Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ontario, and L. L. McMurray of Gutta Percha & Rubber Ltd., Toronto, were elected to office at the recent meeting of the Toronto Export Club, the former as chairman, and the latter to serve on the executive committee.

The Columbus Rubber Company of Montreal, Ltd., 1349 Demontigny street, East, Montreal, Canada, is enlarging its plant by the construction of a new boiler house and substation, the new building also supplying additional floor space. John Myers is vice-president.

The progress shown by the Canadian I. T. S. Rubber Co., Ltd., Toronto, during the last few years is evidence of a most remarkable growth. The new factory addition comprises some 22,000 feet of floor space, which makes possible a greatly increased production and provides facilities for improved service to customers.

J. W. Green, credit manager, Eastern Division, Dominion Rubber Co., Ltd., Montreal, was recently elected a member of the Council Board of the Canadian Credit Men's Trust Association, Ltd.

The Federal Rubber Manufacturing Co., Ltd., 26 Duncan street, Toronto, Canada, formerly known as the Federal Machine & Rubber Co., Ltd., has increased its capital from $40,000 to $100,000, and has also purchased the former Dore carriage factory at Wingham, Ontario. After plant alterations are completed, the company will begin operations about July 1, continuing the manufacture of "Supertite" rubber cements, friction tape, patching materials, rubber soles, stair treads, door mats, molded rubber goods, etc. I. W. Willis is general manager.

Canadian Manufacturers' Association

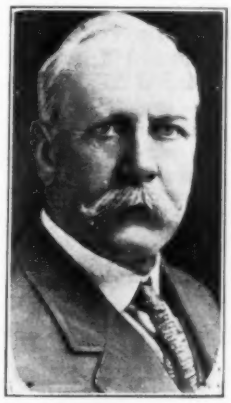
At the recent annual meeting of the Prairie Division of the Canadian Manufacturers' Association, George Wight, manager of the Dominion Rubber Co., Ltd., was elected honorary secretary; while R. E. Jamieson, managing director of the Gregory Tire & Rubber Co., Ltd., was appointed vice-chairman of the association's British Columbia division, his name also appearing as a member of the Legislation Committee. E. W. BeSaw, of the Firestone Tire & Rubber Co. of Canada, Ltd., was chosen as one of the membership committee of the Hamilton, Ontario, branch, while Joseph Maton of the Miner Rubber Co., Ltd., was selected as a member of the export committee of the Quebec division. T. Y. O'Neil was also chosen as one of the executives of the last-mentioned branch, where W. H. Miner, of the Miner Rubber Co., Ltd., will serve as an ex-officio member of the executive committee, he having also been elected to serve in a similar capacity with the Montreal branch.

DURING THE FIRST QUARTER OF THIS YEAR THERE HAS BEEN A marked improvement in the Czechoslovakian tire market, while many cars have been recently purchased. American casings are growing in popularity, due to their satisfactory wearing qualities. Retail tire prices have been lately decreased about 12 per cent.

The Obituary Record

President of Spreckels "Savage" Tire Co.

JOHN D. SPRECKELS, president of the Spreckels "Savage" Tire Co., San Diego, California, the foremost citizen of his city, and one of the leading industrialists of the Southwest, died on June 7 in his seventy-third year, at his home near the Hotel del Coronado after an illness of several months. The funeral took place two days later. The body was cremated and the ashes sent to San Francisco to be placed beside those of Mrs. Spreckels and their son, John D. Spreckels, Jr. Throughout San Diego business was suspended while the funeral was in progress, and traffic was halted for a brief period over all railroads and ferries in the city.



John D. Spreckels

John Diedrich Spreckels, the son of the late Claus Spreckels, Hawaiian "Sugar King" and San Francisco capitalist, was born in Charleston, South Carolina, and educated in the Pacific Coast metropolis and later in Hanover, Germany. Interested in sugar planting and refining, with his brother Claus, he established Hawaiian and Australian steamship lines, and later extended his activities to include railroading, banking, publishing, real estate operations, hotel and theater building, and many other enterprises. About eight years ago he became interested in the Spreckels "Savage" Tire Co., and with his name and aid it has since developed into a very successful concern.

Mr. Spreckels was a noted art collector, member of leading Pacific Coast clubs, a York and thirty-third degree Scottish Rite Mason, and a princely benefactor, generous to all creeds and classes. He married Miss Lillie Sieben at Hoboken, New Jersey, in 1877. They had four children, Mrs. Grace Hamilton, Mrs. Paul Wegeforth, Claus Spreckels, and the late John D. Spreckels, Jr.

Two Well-Known German Scientists

The well-known scientist, Professor Franz von Soxhlet, died recently in Munich at the age of 78 years. The name is widely known in connection with the Soxhlet extraction apparatus.

The death of Professor Dr. Rausenberger, in Munich at the age of 58 years, recalls his war services relating to the use of rubber in airplanes and in the development of rubber tires for transporting cannon and munitions. He suggested the use of wide, solid rubber tractor tires for 21 and 15 cm. cannon in the marshes of Flanders in 1918.

Author of British Rubber Export Restrictions

Baron James Stevenson, chairman of the committee which drafted the British government's rubber restriction scheme, died at his home in Holmbury, Surrey, England, on June 10, 1926. He was best known in Britain as the principal organizer of the British Empire Exposition and was raised to the peerage on the occasion of its opening at Wembley in 1924.

Baron Stevenson was born at Kilmarnock, Scotland, April 2, 1873. His chief business interest was that of managing director of John Walker & Sons, Ltd., distillers of whisky at Kilmarnock.

During the World War he was prominent under the Ministry of Munitions in a number of important capacities, and later was Surveyor-General of Supply of the War Office, member of the Air Council, vice-chairman of the Advisory Committee on Civil Aviation, and finally chairman of the Rubber Investigation Committee and personal adviser to the Secretary of State for the Colonies. He was chiefly instrumental in developing the scheme, known by his name, to control the production, export and price of plantation rubber.

The Friendly Ear

"Too busy to see you to-day—not in the market for anything in your line." How often are salesmen dismissed with these words without a hearing! Yet the purchasing agent who exhibits this closed type of mind is losing more for his company than the salesman who misses the order.

The rubber industry as a whole, however, has opened the door to salesmen more than ever before and has learned the advantages of the friendly ear. Nothing is ever lost in giving ten or fifteen minutes time to a salesman who knows his business. The chemist can spend a valuable half hour with the compound salesman in discussing his problems; the engineer owes it to himself and his company to keep in touch with the latest developments in rubber machinery. And the purchasing agent, himself, can acquire valuable knowledge about countless small and large material and accessory items of which many new types constantly appear on the market.

Rubber companies are large users of packing cases of all kinds. The purchasing agent who told this story had several sources of supply from which he was buying regularly, and when another fiber case salesman sent in his card, the natural inclination was to send back the "not interested" message.

But it so happened that the superintendent had complained that morning that his cases were not standing up well, that breakage was excessive. So the new salesman was ushered in, and together they took a trip to the packing department. As luck would have it, this salesman was worthy of his calling and not just an order taker.

On observing the man setting up the cases, he found that he was bending the flaps in too far, causing a crack to start in the crease, which later made the case split open. He had a fine chance to knock his competitor's merchandise but wisely refrained. Due to his suggestion the breakage was stopped, and the purchasing agent had spent a valuable ten minutes with him. He did not scratch the order book on that particular day. But he laid the foundation for a profitable account which came his way later on.

Small rubber companies, particularly those who cannot afford to have a rubber chemist or a technical staff, have profited immensely from the advice and help of compound and accelerator salesmen. In reality these men are more than salesmen: they are technical advisers and have added immeasurably to the general dispersion of rubber knowledge.

A great many of them have learned the game in the mill themselves. This gives them the advantage, in case of any difficulty or call for a practical demonstration, of being able to go into the mill room, mix a batch for a trial run, and give the calender and mill men a few valuable tips on how they can improve the running of a stock.

Thus are formed friendships and associations which build up business confidence and benefit buyer and seller alike. Giving the salesman the friendly ear always pays dividends.

The Rubber Trade in Europe

Great Britain

British Rubber Industry Little Affected by Strike

THE great strike has had its unfortunate effect upon many sections of British trade, among which the rubber industry, although perhaps suffering less than some others, must be included. Following the injunction of the Prime Minister, the executives of the various rubber companies made earnest, and, in the main, successful efforts to keep their plants in operation, factories in some cases running full time while the strike continued. Only one organization, the India-Rubber, Gutta Percha and Telegraph Works Co., Ltd., Silvertown, London, E., was forced to close its works, the employes having joined the general strike. In some other instances only the necessity for conserving fuel and power resulted in a part-time schedule, while in Scotland the production was little affected.

A circular sent out during the strike to its membership by the India Rubber Manufacturers' Association reiterated the Prime Minister's advice and called upon the members to report: (1) Their position in regard to working hours, that is, as to whether conditions allowed them to work full or partial time; (2) As to whether they were and are in short supply of any raw materials or power supplies. In the event of any member being inhibited from keeping running on account of any essential supplies the Association proposed to report this fact at once to other firms in his district in order that they might assist by advice, and, if possible, by supplies in case of any such individual shortage.

In commenting upon the strike *The India-Rubber Journal* quotes a correspondent as saying in part: "The main grievance of the rubber industry in connection with the general strike was that it came about just when, for the first time this year, there seemed a chance of a revival in every section of the trade. On the eve of the strike, and one might say throughout the month of April, signs of improved trade were noticeable everywhere. Then came the general strike, and with it complete stagnation. This, at any rate, so far as selling goes; manufacture was carried on as far as possible. Apart from the shortage of orders, the fear of cancellations and the general uncertainty, many of the works were, however, also hindered by a shortage of supplies and raw materials. As a rule, it was not raw rubber which was the difficulty but chemicals, which could not be transported from the docks, and there was, of course, also the shortage of coal, which is still impeding production. The industry is feeling the effect of the strike in two ways. In the first instance, there has been a direct and immediate loss in trade, that is to say, in orders which failed to materialize, and, in the second, the prospects for future trade have been jeopardized."

New Restriction Rules

Announcements from the Colonial Office, according to reports published by W. H. Rickinson & Son, were that dating from May 1, 1926, no increase was to be made in the next quarter's rubber export quota, which, therefore, remains at 100 per cent, while big producers have had their assessment limit of 500 pounds per acre withdrawn, and that of the small producers has been raised to 400 pounds per acre. At the same time provision has been made for restriction to 80 per cent for the quarter beginning August 1 should the average price of spot rubber on the London market fall below 1*s* 9*d* per pound during the quarter beginning May 1. The original terms of the restriction scheme apparently do not now apply. The following are the fixed quarters: November 1 to January 31, February 1 to April 30, May 1 to July 31, and August 1 to October 31.

Rubber Restriction vs. Lagging Consumption

On both sides of the Atlantic and in several sections of the rubber industry the new regulations regarding rubber restriction are meeting with an unfavorable response. It is felt by many that the new measures are too drastic, to say the least, while the immediate effect in the United States has been a decrease in the importation of crude rubber, combined with a decided advance in the use of rubber reclaim. It has been a standing grievance with the Americans that, although they are by far the largest consumers of crude rubber, they were not consulted during the organization of the Stevenson restriction scheme, nor have their requests since that time regarding the measure been heeded.

World Production and Consumption of Crude Rubber

During the seventeenth annual meeting of the Rubber Plantations Investment Trust, Ltd., which was held recently in London at the Cannon Street Hotel, H. J. Welch, presiding as chairman, included in his address some interesting statistics, saying in part:

The world production of crude rubber during 1925 amounted to 505,000 tons dry weight, or about 100,000 tons more than in 1924. Undoubtedly the very high prices stimulated in some quarters more drastic tapping; the output of Dutch native rubber, in particular, was nearly 50 per cent greater than in the previous year.

The absorption during 1925 amounted to 555,000 tons, of which the United States accounted for 385,000 tons, and the rest of the world for 170,000 tons. The United States absorption was 50,000 tons and that of the rest of the world was 35,000 tons greater than in 1924. Every manufacturing country, with the exception of Japan, absorbed more rubber in 1925 than in the previous year. . . .

The registration of automobiles at the end of last year was for the United States of America about 20,000,000 vehicles, and for the rest of the world about 4,500,000. This represented an increase over the previous year of about 14 percent for the United States of America, and 22 per cent for the rest of the world. This relatively greater percentage increase outside the United States is not surprising, and may be expected to continue to develop. Also during the past year or two the use of the motor omnibus and lorry has developed rapidly everywhere. This class of vehicle runs continuously a great number of hours each day, often on indifferent road surfaces, and their total consumption of rubber is heavier than many people suppose. . . .

Turning now to the current year, we find no evidence at present that any fundamental change has come over the actual consumption of rubber. The absorption in the United States has averaged over 32,000 tons per month during the first quarter, or about equal to the average monthly rate during 1925, and it has apparently been maintained largely by the demand for original equipment.

The absorption of most of the important manufacturing countries, except Germany, during the first quarter has been ahead of the average rate for 1925, and their total absorption should now show a seasonal increase from April to August. When all these facts are taken into consideration, it appears that the absorption of crude rubber during 1926 will probably not be less than 600,000 tons.

Institution of Rubber Industry

Several booklets and published reports regarding the activities of the Institution of the Rubber Industry are appearing, one of these bulletins containing accounts of papers read during the sessions of the Institute throughout the past year, while two other booklets cover the social and educational activities of the organization, and a report of the Rubber Shareholders' Section.

The program for sessions of the Institute during the coming year is being planned, while a special meeting has been arranged for July 22, when the Institute will join with the Oil and Color Chemists' Association, the subject of the leading paper at that session being "The Influence of Particle Size in the Paint and Rubber Industries." Dr. S. S. Pickles and B. D. Porritt will be among the speakers, while Sir Stanley Bois will preside.

British Notes

The annual London Motor Show will be held this year from October 21 to 30, the event taking place, as usual, in Olympia, Kensington, London. The exhibition is being arranged by the British Society of Motor Manufacturers and Traders, Ltd.

At the recent annual meeting of the Rubber Growers' Association, Edmund B. Skinner, for thirty-five years associated with the industry, especially in the planting division, was elected chairman. The association's report shows a rapid increase in membership and income, the 573 companies representing the membership now owning 3,001,141 acres of land of which 1,426,216 were planted to rubber. A separate financial statement indicated the propaganda activities of the association, the total expenditures for these measures, mainly in the United States, being £40,500 or about $195,000.

Germany

Exports of rubber goods during the first three months of 1926 totaled 46,007 quintals, value 28,195,000 marks, against 39,201 quintals, value 21,300,000 marks, during the same period of 1925. Of these amounts, 2,571 quintals, value 2,732,000 marks in 1926, against 3,109 quintals, value 3,278,000 marks in 1925, represented exports of hard rubber goods. The increase in 1926, therefore, was entirely due to larger sales of soft rubber goods.

Imports during the first quarter of 1926 came to a total of 5,553 quintals, value 2,837,000 marks, as compared with 5,096 quintals, value 3,382,000 marks during the corresponding period of the preceding year.

The Hamburg Rubber Exchange

Business on the Hamburg Rubber Exchange, which resumed activities again as from June 15, 1925, has not assumed the extent which those interested had hoped for. However, much has been done to encourage the use of the Hamburg Exchange in preference to that of London or New York.

Thus, the minimum amount for which contracts may be closed is 1,000 kilos (2,204 pounds), and there is no fixed maximum. The Liquidations Kasse A. G., Hamburg, books the contracts, guarantees them and sees that they are duly carried out. Quotations are fixed in Hamburg for eight months, and that for each separate month as well as for each quarter.

Air Pressure for Balloon Tires

The Nationale Automobil-Gesellschaft has recently been investigating the tendency of front wheels, equipped with balloon tires, to unsteadiness and has discovered that it can be remedied by using a somewhat higher pressure than is customary for ordinary balloon tires. Thus a tire of 32 by 6.20, for a 10/45 h. p. passenger car should have a pressure of at least 2¼ atmospheres in the front wheels. A pressure of 2½ atmospheres would be still better. For the back wheels the pressure may remain at 2 atmospheres or be altered to 2½. Both the Continental and Peters Unions agree with this, but Excelsior believes that the increase in internal pressure should be avoided if above 10 per cent of normal pressure.

German Exhibitions

It has been decided to hold an exposition again this year of motor vehicles and accessories. At first, the intention had been to make an international show of it but unfortunately this was not possible and the German Automobile Exhibition, 1926, will again be a purely national affair. The exhibition is to take place during October 29-November 7, 1926, in Berlin.

On May 8, the big exposition for hygiene, social precautions and physical exercises known as "Gesolei" was opened in Dusseldorf. The show demonstrates in a remarkably fine manner what science has done in the matter of caring for and promoting health and also the interaction of science and industry. The rubber trade is well represented at the exhibition.

New German Rubber Goods

The firm of A. and M. Dolling, Leipzig, has recently patented a hollow rubber protector for the pedals of pianos. It conforms to the shape of pedals and can easily be adjusted.

A new use for sponge rubber has been found by Fritz Frey, Mannheim, who makes a sponge rubber bandage to be bound over the eyes and ears of women when shampooing their hair. The sponge rubber absorbs all liquids coming down from the head thus affording greater comfort to the users of this device.

The firm of Wilhelm A. C. Wessel, Lubeck, has just put on the market an inflatable cushion seat, "Fahrwohl," for use in canoes, rowboats and the like. The seat consists of two cushions connected on the under side by two wide straps and in case of need serves as a safety belt. When deflated, they can be rolled up and carried in any coat pocket. The cushions are made of the finest quality red rubber and supplied with or without an attractive fabric cover.

German Company Notes

The Continental recently reduced tire prices as follows: 13 per cent on balloon tires, 10 per cent on tubes, 12 per cent on motorcycle tires and tubes, 8 per cent on bicycle tires and tubes, 9 per cent on giant truck pneumatics and tubes and 8 per cent on solid tires.

Sales of American made footwear are falling off in certain districts owing chiefly to increased activity of the Harburg factory and the policy of direct selling to retailers which the Hutchinson concern of Frankfurt-am-Main is following. Another factor is the desire of merchants to cut down imports to help the German trade balance.

France

The Caoutchouc Industrial du Sud, 27 rue Barla, Nice, is one of the most important manufacturers of rubber-soled canvas shoes in France. The firm was established five years ago and has rapidly forged ahead. It has an up-to-date factory equipped with American machinery, and employs 600 workers. The production capacity per day is 10,500 pairs of shoes, and includes five models in three colors, white, brown and gray, in all sizes from infants' to men's.

Russia

The Russian Rubber Trust produced rubber goods to a value of 67,100,000 rubles during the half year October 1, 1925—April 1, 1926, this being 99.5 per cent of the program. Some 12,900,000 pairs of rubber galoshes were manufactured during the period under discussion. Due to the continued development of manufacture and improved equipment, the program for the current year is to be filled completely and some 25,000,000 pairs of rubber galoshes will be put on the market. During the first half year 14,200,000 pairs were realized and the stocks of galoshes at present come to 2,200,000 pairs.

JAPAN

Japanese rubber imports during the last five years were as follows:

	Kobe and Osaka Long Tons	Total Japan Long Tons
1921	16,235	22,981
1922	11,599	16,449
1923	13,946	17,181
1924	14,225	19,612
1925	9,758	12,743

As the above shows, 1925 imports into Kobe and Osaka decreased by one-third.

Reexports of rubber to the United States were 573 long tons, value $135,000, in 1921; 948 tons, value $366,000 in 1922; 854 tons, value $533,000 in 1923; 150 tons, value $99,000 in 1924 and 1,575 tons, value $2,580,000 in 1925.

The Rubber Trade in the Far East

Malaya

ACCORDING to an announcement from the Colonial Office, the percentage of standard production of rubber exportable at the minimum rate of duty from Ceylon and from Malaya, for the quarter beginning May 1, has been fixed at 100 per cent.

The maximum limit of 500 pounds per acre for estates over 25 acres in Malaya, is abolished. In the case of small holdings the maximum limit has been raised to 400 pounds per acre for mature rubber and to 200 pounds per acre for rubber in bearing but not mature.

At the same time provision is made for restriction to 80 per cent for the quarter beginning August 1, should the average price of spot rubber in the London market fall below 1*s* 9*d* per pound during the quarter beginning May 1.

The news of this decision has on the whole been received with satisfaction. The sagging of prices during the past months has had an unnerving effect and pessimism seemed to be once more gaining hold. The knowledge that the allowance will remain at 100 per cent, and that restriction will quickly act should prices fall below the newly fixed higher minimum, has a reassuring effect.

The decision, in respect of the percentage of release and the limits for assessment, pretty nearly coincides with the recommendations of the Planters' Association of Malaya reported in *The India Rubber World* of June, 1926. In spite of this, there is not complete agreement on the point of the new assessment rules here. It is thought in some quarters that while the removal of the maximum limit of 500 pounds will make very little difference in the amounts reported,—the estimated increase due to the new ruling is put at not more than 400 tons a year—the raising of the limits for small holders may result in a notable increase in output. Others consider that, of itself, the higher assessment will not greatly affect actual production, but that permission to increase their output may encourage a practice among small holders that has already been the subject of frequent complaint, namely, stealing from neighboring large European estates.

As to the bearing of the new decisions on the immediate future, the *Malayan Tin & Rubber Journal* finds there is no reason to believe that any unjustifiable flooding of the market will result. It states:

According to the latest official figures from the Department of Rubber Control the amount exportable from Malaya for the current quarter is 83,380 tons, out of which 46,721 tons were exported in the first two months of the quarter, leaving the large export balance of 36,659 tons to be achieved in the current month of April. This last figure, however, includes a carryover from the previous quarter of 9,613 tons, which, at least, may have to be again transferred to the next quarter. Those who may be inclined to think that this large reserve means that the restricted estates cannot produce their quota, or are holding up supplies, may be interested in the fact that a special F. M. S. Gazette notification contains a tabulated statement by the controller showing that a large part of this carryover, far from being hidden reserves on estates, is actually in the hands of the Singapore dealers whose stocks increased from 12,900 tons at the end of February to 18,289 tons at the end of March. These figures at least discount the idea of there being any considerable hidden reserves on estates.

Bud Grafting of Rubber

In Malaya, views on the value of bud grafting rubber may be stated to be fairly generally adverse. Of the minority in favor, Major Gough is probably the one who has been most active in trying to convert planters here to his standpoint. Some time ago, F. G. Spring of the Department of Agriculture, suggested to Major Gough that he be permitted to investigate yields of budded trees on Kajong and Sungei Reko Estates, results to be published in the *Agricultural Bulletin*. Major Gough placed the area in question at the disposal of the officers of the Agricultural Department and the first records were taken on December 4, 1925.

The mother trees from which buds were taken, were known superior yielders and were 13 years old when used for budding purposes. Stock was from unselected seed and was budded when one year old. The budded area which has been tested by tapping covers about 70 acres. The land was opened up from virgin jungle. Budding in the field began in October and November, 1921.—Major Gough has secured a very high-yielding Clone 1, one group of which contains 308 trees, also a mixed Clone of 94 trees. Tapping began in August, 1925, was stopped for a certain period and recommended on November 8, 1925, the system being alternate daily tapping. The official records were begun in the beginning of December.

The average girth at 17 inches from the ground was 21.66 inches for Clone 1, 21.18 inches for the mixed Clones and 22.8 inches for the 31 five-year-old control trees.

Average yields of dry rubber per tree from test trees taken on different days were as follows:

Clone 1		Mixed Clones		Control Trees	
No. of Trees	Grams	No. of Trees	Grams	No. of Trees	Grams
17	17.3	15	23.9	15	6.5
17	17.5	14	22.2	15	6.4
17	17.2	15	18.1	15	5.7
17	15.6	15	15.4	14	5.7
16	14.1	..	....	..	...

The highest average yield from trees of Clone 1 in the above test was 24.5 grams per tapping, from tree No. 126. The poorest yielder was No. 222 giving 9.1 grams per tapping.

The highest average from test trees of the mixed Clones was given by tree No. 590, namely 28.7 grams per tapping. The poorest yielder was tree No. 591, giving 12.3 grams.

The highest average yield from control trees was obtained from tree No. R. 20, which gave 12.6 grams, the poorest yielder being No. 53 with only 2.3 grams per tapping.

The results obtained may be termed very favorable for the budded trees.

Ceylon

Figures issued by the Controller of Rubber, Ceylon, show that during March, 1926, Ceylon exported 5,177 tons of home-grown rubber and 411 tons of imported rubber, against 4,362 tons of Ceylon-grown rubber and 434 tons of imported rubber in 1925. The exportable maximum for March, 1926, was 5,720 so that the exports during that month too, fell below the amount allowed.

Exports of latex during March, 1926, were 1,200 gallons.

New Restriction Rulings

The new restriction rulings have been received here with feelings of relief. The uncertainty regarding the future of restriction and the fear that the combined protests of American and British manufacturers might carry undue weight with authorities caused no little anxiety in certain quarters especially since prices have shown a tendency to drop still lower rather than to rise to their former high level.

However satisfied Ceylon may be as far as the rulings affect her, it cannot be denied that the new concessions made to Malaya are causing anxiety. Many people fear that the change in the Malayan assessment rulings amount to nothing less than the lifting of restriction in Malaya, as it is thought improbable that machinery is

in existence for giving immediate effect to the provisions contained in these rulings.

The concession to Malaya will bring her in line with Ceylon where at no time since the introduction of restriction has there been a maximum limit of assessment for larger holdings. It was granted to Malaya because the limitation of the maximum assessment to 500 pounds per acre tended to discourage planting of new areas and the expenditure of money to get the best results out of old rubber, such at least is the opinion here.

Netherlands East Indies

The sudden and widespread interest that is being taken by Dutch and foreign capital in the remilling of native rubber, has caused the local government to take the matter under consideration, for, while interest is considered highly gratifying and it is hoped that an industry capable of competing with that in Singapore will be established in the Dutch colonies, it is feared that unrestricted building of remilling factories would end by bringing disaster on all concerned.

At present, the establishment of factories is practically unrestricted, as this is only subject to the so-called Hinder Law and the permission of the local authorities. Consequently, a new rubber ordinance has been put before the People's Council whereby the power to permit the erection of factories for remilling rubber is vested exclusively in the central government, and whereby the number of rubber mills allowed will be dependent on the quantity of rubber produced locally. By this ruling it is hoped to insure a sufficient quantity of working material to each factory, while care is taken that there shall be enough competition, and, furthermore, the interests of the native rubber producers are safeguarded.

In the Council, the expectation was voiced that the output of native rubber which in 1925 was about 80,000 tons, valued at 250,000,000 guilders, would be doubled within the next five years.

During the discussion in Council of this ordinance, certain members put forward an amendment providing that permits for rubber-milling factories should include the condition that at least half of the managing staff should be Netherlands subjects.

The Netherlands Rubber Union

A few months ago mention was made in these columns of a Dutch rubber syndicate formed to exploit native rubber in the Dutch East Indies. Further particulars of this body, which has been registered as the Netherlands Rubber Union, have now been published.

The concern is capitalized at 7,500,000 guilders (about $3,000,000 United States currency), divided into 60 preferential shares of 1,000 guilders each and 7,440 ordinary shares of 1,000 guilders each. Of this, 60 preferential and 1,440 ordinary shares have been paid up in cash.

The participants include the Nederlandsche Handel Mij., the Stoomvoart Mij. Nederland, the Rotterdamsche Lloyd, the Paketvoart Mij. (the last three being steamship companies), the Senembah Mij., the Deli Mij., the Deli-Batavia Tabak Mij., Mirandolle, Vonte & Co., Crone and Van Eeghen.

Three delegates were sent to the Dutch East Indies to investigate the possibilities of native rubber and an interview with T. Van der Weide, one of the party, has just been published.

Mr. Van der Weide states that the difficulties are greater than appeared to be the case in the outset. Thus while the new company would have the advantage of saving the freight to Singapore, it seems that the Singapore factories have certain advantages on their side which may more than offset those of the Dutch. Thus if different factories are erected in each center, each factory would have to be equipped to meet all kinds of emergencies and very good mechanics able to make major repairs would have to be employed.

The Singapore factories do not require all this, for, if accidents should happen, a telephone call to a machine shop would bring an expert to the job in a very short time and interruptions in operating would be practically negligible.

Foreign Capital in Dutch East Indies

The local government publishes an informative report on international interests in the Netherlands East Indies.

In 1924, rubber occupied second rank in the list of exports, that commodity alone representing a value of 202,600,000 guilders or 13.2 per cent of the total exports. Of this total, 46 per cent was shipped to the Straits, 39 per cent to America and 6 per cent to England.

The importance of the different rubber centers has increased enormously since 1913. Thus in that year the capital invested in rubber totaled 106,443,000 guilders for the East Coast of Sumatra, while in 1924 the amount was figured as 256,756,000 guilders. The following table shows the extent to which the different nations were interested:

	1913	1924
Netherlands	35,100,000	92,908,000
British	36,395,000	67,558,000
American	17,160,000	40,750,000
Franco-Belgian	15,565,000	36,825,000
Swiss	815,000	2,925,000
Japanese	.....	6,677,000
German	.....	2,654,000
Others	1,008,000	6,460,000
Total guilders	106,443,000	256,756,000

In this calculation the value per hectare (2.45 acres) was figured at 1,200 guilders for 1913, and at 1,400 guilders for 1924. The increase in the share of Dutch capital is a noteworthy feature in the above table.

Data for Java are arranged somewhat differently and show the rubber acreages in West, East and Central Java, owned by the different nationalities. The following table gives the areas in bouws (1.75 acres) for 1924:

	Total Area	British	Franco-Belgian	Japanese	German	Others	Total Foreign
West Java	106,391	29,686	12,686	367	924	3,264	46,841
Central Java...	27,504	8,579	1,770	...	...	.....	10,349
East Java.....	107,062	41,082	4,532	497	...	.....	46,111
Total bouws....	241,357	79,261	18,988	864	924	3,264	103,301

Of the total area of 241,357 bouws, therefore, 103,301 bouws or 42.2 per cent represents foreign capital. And of this percentage 32.4 is British and 7.8 Franco-Belgian. The value of Java rubber land in 1913 is put at 1,000 guilders per bouw and for 1924 at 1,500 per bouw.

The great strides that Dutch capital has made is illustrated by figures for 1911 derived from private sources. In that year it was calculated that Dutch capital was 11,240,200 guilders or 11 per cent of the total, Franco-Belgian, 18,042,000 guilders or 18 per cent; British, 70,500,000 guilders or 70 per cent and German 1,150,000 or 1 per cent, the total capital invested being estimated at 100,932,700 guilders.

Examination of the 1924 figures shows that foreign capital is least interested in Central Java. There is practically no foreign capital invested in the districts: Cheriben, Rembang Kedoe, Jogjakarta and Madioen.

THE SHIBUYA RUBBER CO., MANUFACTURERS OF RUBBER GOODS and importers of rubber machinery and chemicals, by reason of expansion of business have removed to larger quarters. Their new location is at 3 Rokuchome, Kaguracho, Kobe, Japan. The company under its enterprising manager, K. Nibu, is planning to add other rubber products to its present lines which include high quality rubber boots and shoes.

JAVA AND MADURA IMPORTED 48,371 AUTOMOBILE TIRES IN December, 1925 against 27,876 in December, 1924. For the entire year 1925 the number was 392,792 and for 1924, 289,922. The number of bicycle tires imported in December 1925 came to 71,909 against 108,521 for the same month of the preceding year, while for the year 1925 the amount was 839,855 as compared with 631,309 in 1924.

Rubber Patents, Trade Marks and Designs

The United States

May 11, 1926*

1,583,878 Tire patch. Charles V. Hall, Washington, D. C.
1,583,917 Vehicle curtain. Bernard P. Donnelly, Holland, Michigan.
1,583,988 Tire patch. Lee Reed Moore, Kansas City, Kansas.
1,584,034 Pneumatic insertion for shoes. Alfred Klotz, Munich, Germany.
1,584,081 Bumper. John L. Douglass, assignor to Isabel S. Douglass, both of New York, N. Y.
1,584,106 Electric heating attachment for hot water bags, etc. Maurice Charles Levinson, assignor by direct and mesne assignments to Keep-Hot Stopper Co., both of Long Beach, California.
1,584,189 Resilient tread member for boots and shoes. Vendel Mrav, Trenton, New Jersey.
1,584,284 Tire casing. Hans E. Grabau, New York, N. Y., assignor by mesne assignments to Alfred A. Glidden, Watertown, Massachusetts.
1,584,333 Garter. Katherine A. Thompson, Milwaukee, Wisconsin.
1,584,434 Corset. Harry A. Colley, assignor to American Lady Corset Co., both of Detroit, Michigan.
1,584,464 Medicinal applicator. Clarence H. Maranville, Dallas, Texas.
1,584,476 Garter. Frank J. Schalow, Brooklyn, New York.
1,584,510 Truss pad. Dana L. Chesterman, assignor to Chesterman Leeland Co., both of Philadelphia, Pennsylvania.
1,584,626 Sole. Warren MacPherson. Cambridge, Massachusetts.
1,584,694 Covering. Thomas W. Miller, assignor to The Faultless Rubber Co., both of Ashland, Ohio.

May 18, 1926*

1,584,718 Fluid expansion rubber to be used on swabs, agitators and packers for oil wells. Walter G. Bisbee and Ben P. Hoffman, both of Bristow, Oklahoma.
1,584,776 Pencil holder. Hans G. Jorgensen, Erie, Pennsylvania.
1,584,778 Toy wheel. Harry T. Kingsbury, Keene, New Hampshire.
1,584,785 Resilient tire. Charles D. McCollough, Des Moines, Iowa, assignor by direct and mesne assignments to himself, E. F. and George W. Lewis, both of Cambridge, Iowa.
1,584,833 Garter. Lee E. Berry, Chicago, Illinois.
1,584,838 Paste dispenser with rubber nipple. Abbott P. Brush, Greenwich, Connecticut.
1,584,885 Pneumatic tire. William J. P. Moore, New York, N. Y.
1,584,983 Adjustable heel. Arthur M. Eichorn, assignor to Evernu Rubber Heel Corporation, both of New York, N. Y.
1,585,040 Boot. William E. McDonald, Rochester, New York.
1,585,048 Heel lining for shoes. Joseph A. Skoglund, St. Paul, Minnesota.
1,585,049 Heel lining. Joseph A. Skoglund, St. Paul, Minnesota.
1,585,050 Heel pocket lining. Joseph A. Skoglund, St. Paul, Minnesota.
1,585,068 Tire. Thomas H. Wright, Los Angeles, California.
1,585,074 Cushion tire. Wilber S. Bisel and George Baudry, both of Atchison, Kansas.
1,585,168 Milk bottle cap. Christian P. Paulsen, Seattle, Washington.
1,585,220 Heel. Harry S. Willis, Philadelphia, Pennsylvania.
1,585,324 Composite vehicle wheel. Harry N. Atwood, Monson, assignor to Rubwood, Inc., Lawrence, both in Massachusetts.
1,585,339 Pneumatic tire. Arthur G. FitzGerald, Brookline, Massachusetts.
1,585,340 Toy blinking eye. George Bruce Fitzgerald, Douglas, Arizona.
1,585,386 Rubber compound paving block. Rufus F. Herrick, Winchester, Massachusetts.
1,585,398 Pocket tire gage. Erik A. Lundvall, Grantwood, New Jersey, assignor to United States Gage Co., New York, N. Y.

May 25, 1926*

1,585,750 Garter. Kenelm Chase Winslow, Spokane, Washington.
1,585,844 Gage device. John J. Fitzgerald, Los Angeles, California, assignor to A. Schrader's Son, Inc., Brooklyn, New York.
1,585,875 Tire. Manley R. Price, Cleveland, Ohio, assignor to H. Thurman Crisp, St. Louis, Missouri.
1,585,900 Bead core. Charles H. Desautels, Springfield, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.
1,585,942 Endless flap. Andrew J. Stephens, Kansas City, Missouri.
1,586,094 Typewriter platen with hard rubber face-sleeve. Joseph Lindburg, Brooklyn, assignor to Underwood Typewriter Co., New York, both in New York.
1,586,104 Blowout patch. Oary A. Morehouse, Cameron, Missouri.
1,586,179 Garter. John P. Croasdale, Berwyn, assignor to Pioneer Suspender Co., Philadelphia, both in Pennsylvania.
1,586,275 Vulcanizing block. Paul R. C. Winans, Fullerton, California.

* Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

June 1, 1926*

1,586,531 Rubber cushion draft gear for railroad cars. Fred L. Lipcot, assignor to International Motor Co., both of New York, N. Y.
1,586,555 Cushion heel. John B. Hadaway, Swampscott, Massachusetts, assignor to United Shoe Machinery Corporation, Paterson, New Jersey.
1,586,556 Cushion heel. John B. Hadaway, Swampscott, Massachusetts, assignor to United Shoe Machinery Corporation, Paterson, New Jersey.
1,586,716 Surgical instrument employing rubber bulb. Samuel P. Snow, Jr., Salt Lake City, Utah.
1,586,907 Tire. Harry Linwood, San Francisco, California.
1,587,068 Golf ball cleaning device. William H. Dinehart, Hudson, New York.
1,587,141 Antiglare device. Henry L. Burk, Milwaukee, Wisconsin.
1,587,211 Garter. Robert Howard Biggs, St. Catherines, Ontario, Canada.
1,587,228 Flat tire signal. Otto H. Helfrick, assignor of one-half to Harlie O. Putt, both of Elkhart, Indiana.
1,587,377 Sole for boots and shoes. James E. Grosjean, Lima, Ohio.
1,587,392 Sport ball. William W. MacDonald, Chicopee, Massachusetts, assignor to A. G. Spalding & Bros., New York, N. Y.
1,587,439 Tire. John Tálos, Akron, Ohio.
1,587,457 Blowout patch. Omer Wood, assignor to Wood Brothers, both of Schenectady, New York.

The Dominion of Canada

May 11, 1926

260,675 Bearing. The Cleveland Graphite Bronze Co., Cleveland, assignee of Carl W. Johnson, Shaker Heights, both in Ohio, U. S. A.
260,702 Bottle stopper. Samuel Jones & Co., Ltd., assignee of Harry Victor Major, both of London, S. E., England.

May 18, 1926

260,830 Apron. Minnie S. Hulley, Ozone Park, New York, U. S. A.
260,839 Rubber article. Ora Krichbaum, Delaware, Ohio, U. S. A.
260,840 Floating chair. Thomas La Farina, New York, N. Y., U. S. A.
260,905 Truss. The Brooks Rupture Appliance Co., assignee of George Winfred Welch, both of Marshall, Michigan, U. S. A.
260,945 Elastic webbing. Kops Brothers, Ltd., of Canada, Toronto, Ontario, assignee of Waldemar Kops, New York, N. Y., U. S. A.
260,949 Pneumatic tire. Michelin et Cie (Société en Commandite par Actions) assignee of André Jules Michlein, both of Clermont-Ferrand, France.

May 25, 1926

261,029 Cushion tire. Charles Escher, Jersey City, New Jersey, U. S. A.
261,038 Suction box cover. Walter Lester Glass, Iroquois Falls, Ontario.
261,116 Box toe stiffener. The Armstrong Cork Co., Pittsburgh, assignee of Raymond E. Garrett, Lancaster, both in Pennsylvania, U. S. A.

June 1, 1926

261,244 Inner tube protector. Richard W. Duggan, Brooklyn, New York, U. S. A.

The United Kingdom

May 5, 1926

248,686 Top boots with elastic slits. Hoyle, Hoyle & Co., Ltd., and E. J. Flewitt, Ilex Mills, Rawtenstall, Lancashire.
248,701* Pneumatic tire. R. Ponsard, Soy, Belgium.
248,734* Solid tire. Gummiwerke Fulda Akt.-Ges., 59, Künzellerweg, Fulda, assignee of L. Harter, 17 Sedanstrasse, Dresden, both in Germany.
248,755* Window cleaner. E. Lamoville, 92 Rue La Boétie, Paris, France.
248,760* Heel protector. W. G. Rudolph, 54 Burgstrasse, Frankfort-on-Main, Germany.
248,818 Pneumatic tire. A. A. Holle, 60, Oxford Terrace, Hyde Park, London.
249,008 Head rest. A. Wiegand, Hofgeismar, Hessen, Nassau, Germany.
249,027 Tire. C. A. Van Bourgonie and P. C. Schalckens, 9 Rue Marée, Borgerhout, Antwerp, Belgium.

May 12, 1926

249,223 Dentures, artificial limbs, etc. G. M. and N. G. Hick, Furze House, Brentwood, Essex.
249,243 Drawing pens. H., J. and F. E. Williamson, all of 13, Coupar street, Dundee, and W. P. Gray, 93, Hope street, Glasgow.

* Not yet accepted.

Chemical patents will be found on page 207. Machinery and Process Patents on pages 210-211

249,275 Horseshoe treads. C. H. Young, 14, Brow Cottages, Hove Edge, Lightcliffe, near Halifax, Yorkshire.

249,285 Draught excluders. Sir H. Austin, Lickey Grange, Bromsgrove, Worcestershire.

249,325 Bed pan. D. S. Long, 112, Wayland Road, Sheffield.

249,357 Thermionic valve support. L. F. Braun, 52, Theobald's Road, London.

249,358 Brake drum band. T. M. O'Gorman, 8, Beechfield street, Cheetham, and W. A. McKay, 13, Churchill street, Chorlton-on-Medlock, both in Manchester.

249,367 Thermionic valve base. W. R. Bullimore, Aberdeen Works, Aberdeen Lane, Highbury Grove, London.

249,427 Combined pencil point protector and eraser. A. Sussmann, 6 Rüdigergasse, Vienna.

249,440 Cushion tire. W. C. Fairweather, 65, Chancery Lane, London (Gummiwerke Fulda Akt.-Ges., 59 Künzlerweg, Fulda, Germany).

249,448 Tire. M. Farrell, Carheen, Craughwell, County Galway, Ireland.

249,451 Umbrella convertible into bathing bag. A. E. White, 88, Chancery Lane, London (Kleinert Rubber Co., 485 Fifth avenue, New York, N. Y., U. S. A.).

249,473* Watch holder. J. M. Capdeviolle, 7 Impasse St. Pierre, Tarbes, Hautes-Pyrénées, France.

May 19, 1926

249,639 Golf tee. W. Cook, 9, Moat Place, and W. G. P. Keddie, 31, Panmure Place, both in Edinburgh.

249,688 Cushion tire. W., R. H. and W. Reid, Greenfield Foundry & Engineering Works, Burnbank, Hamilton, Lanarkshire.

May 26, 1926

249,810* Draught excluders. Fisher Body Corporation, Cass avenue, Detroit, assignee of E. G. Simpson, 206 McLean avenue, Highland Park, both in Michigan, U. S. A.

249,941 Ironing machine padding. British-American Laundry Machinery Co., Ltd., 36, Victoria street, Westminster (American Laundry Machinery Co., Cincinnati, Ohio, U. S. A.).

* Not yet accepted.

New Zealand

April 8, 1926

55,484 Game. Sydney McNamara, 137 Clyde street, Dunedin.

Germany

428,814 (August 28, 1925). Pneumatic, elastic rubber pelotte, particularly for footwear. Firma W. Gay & Co., Frankfurt-am-Main.

428,957 (January 16, 1925). Flat-foot insole. Mittelland Gummiwerke, A.-G., Hannover-Linden.

429,020 (May 29, 1925). Cover for pneumatic tire. Max Draemann, Frondenberg (Ruhr).

429,022 (June 16, 1925). Elastic solid tire. Franz Streit, Vikarienweg 6, Hamburg.

429,774 (April 29, 1925). Rubber stocking protector. Ernst Grospitz, Königstrasse 54, Schwerin in Mecklbg.

429,961 (November 2, 1924). Hollow rubber ball consisting of an inner ball and cover. The Dunlop Rubber Co., Ltd., London. Represented by Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. Wirth, Frankfurt-am-Main, and T. R. Koehnhorn and E. Noll, Berlin S. W. 11.

430,007 (February 4, 1925). Porous rubber body to suck up, retain and give off fluids. Dr. Hermann Beckmann, Albertinenstrasse 26, Wannsubahn, Zehlendorf.

430,189 (November 7, 1924). Closing arrangement in which the elasticity of a hollow rubber body induces automatic locking. Adolf Schultheis, Winterthur, Switzerland. Represented by F. Kennecke, Barmen.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

May 11, 1926, Act of February 20, 1905

212,619 GOLD SEAL—sanitary aprons and elastic belts. Isidor Goldberg, doing business as National Garter Co., New York, N. Y.

212,687 Fanciful circle in the center of which is the representation of a child's head, and at the top the words: "HUG-ME-TITE"; beneath the circle the words: "THE HOTTER THE WEATHER THE TIGHTER SHE HUGS"—tire patch for inner tubes, rubber boots, hot water bottles, etc. Clarence J. Livengood, doing business as Hug-Me-Tite Manufacturing Co., Winston-Salem, North Carolina.

212,774 Representation of a man, above him the words: "DAN D. DRESSER SAYS"—mittens of rubber, leather, fabric, etc. The Howard A. Geiger Co., Cleveland, Ohio.

May 18, 1926, Act of February 20, 1905

212,939 BULL DOG—friction tape. Boston Woven Hose & Rubber Co., Cambridge, Massachusetts.

213,102 Double circle containing the representation of a girl and the letters and numeral: "AA-1"—narrow elastic braid. Rhode Island Web Co., Pawtucket, Rhode Island.

213,127 GOLD SEAL—fancy shirred elastic and narrow braid elastic. Isidor Goldberg, doing business as National Garter Co., New York, N. Y.

May 25, 1926, Act of February 20, 1905

213,208 HOMESPUN—tires and inner tubes. Racine Horseshoe Tire Co., Racine, Wisconsin.

213,253 The word: "PIERCE" through the center of which runs an arrow—rubber and fabric foot mats. The Pierce-Arrow Motor Car Co., Buffalo, New York.

213,286 'BOBBETTE'—overshoes and galoshes. Converse Rubber Shoe Co., Malden, Massachusetts.

213,296 Two double ovals, the inner one containing the words: "WIMBLEDON MODEL"; the outer, two tennis balls—fabric and rubber tennis shoes. Saks & Co., New York, N. Y.

213,303 Representation of a girl sitting with her legs crossed, on one side of her the word: "GLORIA"; on the other side the word: "MAID"—garters. De Luxe Novelty Co., New York, N. Y.

213,328 Representation of a radiator bearing at the top the words: "WORLDS BEST PATCH"; in the center a representation of a hog with the word: "HOG" superimposed on it and enclosed by a half circle containing the words: "A HOG FOR SERVICE"; below the words: "PATCH" and "LAMINATED PATCH"—tire patcher. American Auto Supply Co., Memphis, Tennessee.

213,343 RED TOP—repair patches for pneumatic tires. The Fisk Rubber Co., Chicopee Falls, Massachusetts.

213,346 Representation of the roof of a house with front triangle containing the words: "TOM DICK HARRY"—boots, shoes and slippers of leather, rubber, etc. Beck Hazzard, Inc., New York, N. Y.

213,352 Diamond containing the letters: "D-D"—rim flaps for tires and tire patches. Dexter Rubber Manufacturing Co., Goshen, New York.

213,353 Circle containing representation of a shoe and the words: "THE ROTH SHOE MFG. CO., CINCINNATI, O., U. S. A."; below this a pennant bearing the words: "BAND-GRIP" "PATENTED SHOE" and immediately beneath the words: "TRADE MARK"—shoes with rubber heels. The Roth Shoe Manufacturing Co., Cincinnati, Ohio.

213,355 DOUBLE-D—rim flaps for tires and tire patches. Dexter Rubber Manufacturing Co., Goshen, New York.

213,363 Heavy black circle through the center of which runs a syringe and around the circle the words: "SPIRAL SPRAY SYRINGE"—syringes. Superior Hard Rubber Co., Butler, New Jersey.

213,371 Globe with the word: "SKOOKUM" running through the center, above the word: "UNIVERSAL," and below the word: "DIAGONAL," on each side of the globe the representation of a box—piston packing. Pioneer Rubber Mills, San Francisco, California.

213,408—Diamond in which is the word: "ESS-BEE"—certain named rubber sundries. S. B. Bonis, Newark, New Jersey.

213,425 Fanciful design bearing the word: "EDGEWOOD," above in each corner the monogram: JKO—rubber and leather shoes. J. K. Orr Shoe Co., Atlanta, Georgia.

213,443 Black square in the center a representation of a sheep and at the top the word: "ROTHSHIRE"—raincoats, etc. Zurkow & Son, Inc., New York, N. Y.

May 25, 1926, Act of March 19, 1920

213,447 DRYDEN—hoof pads. Dryden Rubber Co., Chicago, Illinois.

213,452 WICKLOW—golf balls, etc. Davega, Inc., New York, N. Y.

June 1, 1926, Act of February 20, 1905

213,497 SNOWSTER—arctics. Associated Merchandising Corporation, New York, N. Y.

213,502 BESTMAID—shoes of leather, rubber, fabric, etc. New York Merchandise Co., New York, N. Y.

213,510 I. MILLER—shoe of rubber, leather, etc. I. Miller & Sons, Inc., Long Island City, New York.

213,544 Circle containing the words: "I. MILLER" and "BEAUTIFUL SHOES"—shoes of rubber, leather, etc. I. Miller & Sons, Inc., Long Island City, New York.

213,555 Circle in the center of which are two crossed flags, beneath one the word: "ANGLO," beneath the other, the word: "FRENCH"; an outer circle encloses the words: "INVENTION PROGRESS MERIT SUCCESS"—boots, shoes and slippers of leather, rubber or fabric. James Branch & Sons, Ltd., London, England.

213,607 Representation of an owl above which are the words: "RED OWL", the whole trade mark lined for red—gaskets for fruit jars and cans. Red Owl stores, Inc., Minneapolis, Minnesota.

213,618 Black circle on which is superimposed a white star and flowing across the front a pennant bearing the words: "BLUE RIBBON"—portable tube repair kits and fan belts. Economy Tire Co., Oklahoma City, Oklahoma.

213,635 "REP!"—tire patches. Ride-Em Patch Co., Newark, New Jersey.

213,637 Representation of a woman diving and above her the word: JANTZEN—rubber and leather gloves, etc. Jantzen Knitting Mills, Portland, Oregon.

213,676 FORMOPED—boots, shoes and slippers of leather, rubber, etc. Scholl Manufacturing Co., Inc., Chicago, Illinois.

213,758 FUMONEX—black pigments for rubber, paint, ink, etc. Binney & Smith Co., New York, N. Y.

June 1, 1926, Act of March 19, 1920

213,772 METHUDY—tires and inner tubes. Methudy Tire & Rubber Co., St. Louis, Missouri.

213,780 DUNLOP—tennis balls. Dunlop Tire & Rubber Corporation of America, Buffalo, New York.

The Dominion of Canada

Registered

May 11, 1926

39,628 GLIDE—golf balls. The Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ontario.

39,629 FLEXYDE—baseballs. Marathon Rubber Co., Inc., Akron, Ohio, U. S. A.

39,666 Rising sun enclosed within a circle around which are the words: "EASTERN RUBBER CO." and "LIMITED"—flaps. Eastern Rubber Co., Ltd., Farnham, Quebec.

May 18, 1926

39,689 Recurring series of two oppositely disposed oval shaped figures, the adjacent sides of which are flattened while their remote sides connect with ribs, and on each side of these oppositely disposed figures are figures having curved sides substantially parallel with the oval figures and ends which are straight—pneumatic tires. Canadian Goodrich Co., Ltd., Kitchener, Ontario.

39,727 INDANTHREN—wearing apparel including suspenders, braces, etc. Indanthrenhaus Johannes Lauersen, Potsdamerstrasse 10-11, Berlin, Germany.

39,728 INDANTHREN—wearing apparel including supenders, etc. Indanthrenhaus Johannes Lauersen, Potsdamerstrasse 10-11, Berlin, Germany.

39,735 Facsimile signature of "J. H. STEDMAN"—mechanical rubber goods. James Herbert Stedman, South Braintree, Massachusetts, U. S. A.

39,744 MONOPUL—footwear. Mishawaka Rubber & Woolen Manufacturing Co., Mishawaka, Indiana, U. S. A.

June 1, 1926

39,822 GARLOCK—gaskets, hose, diaphragms, etc. The Garlock Packing Co., Palmyra, New York, U. S. A.

The United Kingdom

May 5, 1926

457,272 TRAUN—dental rubber and hard rubber instruments for surgical purposes. Heinrich Otto Traun, trading as Dr. Heinr. Traun & Söhne Vermals Harburger Gummi Kamm Co., 59, Meyerstrasse, Hamburg 8, Germany (D. Young & Co., 11-12 Southampton Buildings, London, W. C. 2).

457,274 TRAUN—hard rubber accumulator boxes, sheets, rods, tubes, mouldings and insulaters. Heinrich Otto Traun, trading as Dr. Heinr. Traun & Söhne Vormals Harburger Gummi Kamm Co., 59, Meyerstrasse, Hamburg 8, Germany (D. Young & Co., 11-12 Southampton Buildings, London, W. C. 2).

467,381 Representation of the figures of a sailor, airman and soldier dancing—goods manufactured from rubber included in Class 40. Arthur Alexander Crozier, 75, Lansdowne Road, West Didsbury, Manchester.

467,577 NEVALIF—tire puncture repair outfit. Edwin Butler, 228, London Road, Southend-on-Sea.

467,691 Representation of Mephisto holding a vulcanizer and above the representation the words: "THE MEPHISTO AUTOMATIC VULCANISER"—chemical substances for use in vulcanization of rubber. Harry Raphael, 29a, Marylebone Lane, Oxford street, London, W. 1.

468,512 PLUS-FOURS—knee protectors, studs, etc. Blakey's Boot Protectors, Ltd., Armley Malleable Ironworks, Modder Place, Armley, Leeds.

May 12, 1926

463,747 Letters: N Y H joined together, the lower extremity of the Y lengthened, and a fanciful design at the top—goods manufactured from rubber and gutta percha. New-York Hamburger Gummi-Waaren Compagnie, 30 Hufnerstrasse, Hamburg 33, Germany (Jensen & Son, 77, Chancery Lane, London, W. C. 2).

465,814 RAPSON—pneumatic tire. Rapson Tyre & Jack Co., Ltd., Rapson Tyre Works, Albert and Burlington Roads, New Malden, Surrey.

465,913 Pennant bearing the word: QUORNA, above the pennant a horizontal line and above this line the words: "MADE IN ENGLAND"—rubber elastic webbings. M. Wright & Sons, Ltd., Quorn Mills, Leicester Road, Quorn, near Loughborough.

466,029 Representation of a sole of a shoe containing the name: "W. D. DACEY," the sole superimposed across the front of a double circle in which are the words: "RUBBER FILLED LEATHER"—rubber filled leather for boots and shoes. Davey, Ltd., 31, Great Andrew street, London, W. C. 2.

468,077 ANTIX—lead glass, lead loaded with rubber, etc., preparations used as a protection against effects of X-rays. Watson & Sons (Electro-Medical), Ltd., Sunic House, 43, Parker street, Kingsway, London, W. C. 2.

468,675 VELVETEX—pigments in use for rubber industry. Binney & Smith Co., 41 East 42nd street, New York, N. Y., U. S. A. (White, Langner, Stevens & Parry, Jessel Chambers, 88, Chancery Lane, London, W. C. 2.)

May 26, 1926

468,186 "GRAFTONETTE"—rainproof and waterproof garments. Marcus Lawrence, trading as M. Lawrence, 1, Mousell street, Bent street, Cheetham, Manchester.

468,584 LINAPEX—insulating materials for electrical purposes. The Ioco Rubber & Waterproofing Co., Ltd., Netherton Works, Netherton road, Anniesland, Glasgow.

Designs

The United States

70,090 Tire tread. Term 7 years. Otto Basten, assignor to Sterling Tire Corporation, both of Rutherford, New Jersey.

70,185 Resilient tire. Term 14 years. Harold D. Reichard, assignor to The Racine Horseshoe Tire Co., both of Racine, Wisconsin.

70,203 Resilient tire. Term 14 years. Leon J. Wickersham, Columbus, Ohio.

70,223 Tire. Term 14 years. Schuyler C. Hatfield, Baltimore, Maryland.

The Dominion of Canada

7,143 Tire tread. Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario.

Germany

944,943 (March 17, 1926). Protective rubber cover for ticket books, etc Fr. Rempuschefsky, Hannover-Hainholz.

945,211 (January 14, 1926). Rubber cones, etc., to be attached to buckets, chairs, tables, etc. Herm. Schmitz, Bahnstrasse, 5 a., Hamborn.

945,232 (March 10, 1926). Rubber cover for steering bar of bicycles. Hannoversche Gummiwerke Excelsior, A.-G., Hannover-Limmer.

945,383 (March 2, 1926). Rubber ring rest for thimbles. Wilhelm Heister, Kücknitz b. Lübeck.

945,454 (January 2., 1926). Rubber conduit with draught discharging carrying members. Kabel-und Metallwerke Neumeyer, A.-G., Nürnberg.

945,487 (March 22, 1926). Finger-cot, or thumb-stall. Heinrich Franz, Stade.

945,636 (March 22, 1926). Llastic bandage for wounds. Carl Buchmüller, Mainluststrasse 9, Frankfurt-am-Main.

945,796 (March 12, 1926). Rubber cushion for telephone-receiver. Karl Schneider, Kleiststrasse 20, Frankfurt-am-Main.

946,066 (March 22, 1926). Driving belt. Continental-Caoutchouc-und Gutta-Percha-Compagnie, Hannover.

946,104 (March 22, 1926). Conveyer belt. Continental-Caoutchouc-und Gutta-Fercha-Compagnie, Hannover.

946,149 (February 16, 1926). Page-turner of rubber in the shape of a thimble. Karl Horn, Dotsheimerstrasse 46, Wiesbaden.

946,216 (March 24, 1926). Solid rubber tire with hollow space. Ferdinand Starkloff, Waltershausen i. Th.

946,243 (March 10, 1926). Doll's outfit of rubber. Gummiwerk Union. Carl O. Witthauer, Neustadt b. Koburg.

946,271 (March 24, 1926). Gas-filled rubber balloon in the shape of a Bavarian beer-jug. Wilhelm Veh, Lauingen a. d. Donau.

946,272 (March 24, 1926). Gas-filled rubber balloon in the shape of a radish. Wilhelm Veh, Lauingen a. d. Donau.

946,425 (February 27, 1926). Rubber doll with a celluloid head. Gummiwerk Union Carl O. Witthauer, Neustadt b. Koburg.

946,470 (March 25, 1926). Rubber joker. Helmuth Ohagen, Piastenstrasse 14, Breslau.

946,613 (November 30, 1925). Rubber-covered resilient foot-rest for motorcycles in which resilience is effected by the rubber and not by a steel spring. Gebr. Franke, A.-G., Mühlhausen i. Th.

946,749 (March 18, 1926). Inflatable rubber arm. Bruno Kühn, Kopernikusstrasse 26, Essen.

947,040 (March 30, 1926). Rubber frame protector for ladies' cycles. Wilhelm Heister, Kücknitz b. Lübeck.

947,672 (April 10, 1926). Rubber tapping-knife with two cutting edges. Wolfertz & Evertz, Solingen.

947,978 (December 5, 1925). Massaging apparatus with one or more rubber-covered balls. Arthur Jacobi, Maassenstrasse 34, Berlin.

947,979 (December 5, 1925). Massaging apparatus consisting of one or more balls having rubber covers on the surface. Arthur Jacobi, Maassenstrasse 34, Berlin.

948,074 (March 30, 1926). Rubber shoe last. Carl Rösler, Bahnhofplatz 8, Frankfurt-am-Main.

948,119 (September 22, 1925). Rubber brush for toilet-bowl. Hugo Schwoche, Schlosskirchplatz 7, Kottbus.

948,207 (March 27, 1926). Endless rubber band for felt calender. Schwieders Gutta-Percha- und Gummiwaren-Gesellschaft m. b. H., Dresden-Leubnitz.

948,268 (March 9, 1926). Sponge rubber brush for beer-glasses. Georg Gunthel, Unterstützengrün, Post Stützengrün.

949,276 (April 6, 1926). Sponge rubber hand guard for wooden handles. Wilhelm Heister, Kücknitz, b. Lübeck.

Labels

The United States

30,380 EVER-SEAL. For automobile tire patches. Lightning Manufacturing Co., Joplin, Missouri. Published March 15, 1926.

Prints

The United States

8,863 FLEXYDE BASEBALLS—OFFICIAL STANDARD—WATERPROOF COVER—CORK AND RUBBER CENTER. Baseballs. The Goodyear Tire & Rubber Co., Inc., Akron, Ohio. Published March 25, 1926.

The Market for Rubber Scrap

New York

June business in all lines of rubber scrap was dull and movement of stocks routine. Delayed spring collections are now arriving but reclaimers are not actively replenishing their stocks. The quotations of all grades have been revised downward in consequence of this slackness in demand. There is no rubber scrap exporting because foreign credit conditions remain unsatisfactory.

BOOTS AND SHOES. The market is easier and there is very little demand. In recent years the supply has run in excess of reclaiming requirements.

TIRES. The collection of tires and reclaimers' needs are closely balanced at the present time. June business proved rather light and quiet.

INNER TUBES. Mixed and compounded tubes have declined about one cent a pound. The market is easier and movement moderate in tonnage.

MIXED TIRES. These have dropped $3 to $4 a ton while white grades have declined even more from the quotations of a month ago.

MECHANICALS. These grades are all down and without much interest or movement.

Quotations for Carload Lots

June 26, 1926

Boots and Shoes		
Boots and shoes, black	lb.	$0.01⅞ @ $0.02
Red and white	lb.	.01 @ .01⅛
Trimmed arctics, black	lb.	.01 @ .01⅜
Untrimmed arctics	lb.	.00¾ @ .00⅞
Tennis shoes and soles	lb.	.00⅞ @ .01
Hard Rubber		
No. 1 hard rubber	lb.	.13 @ .14
Battery jars, black compound	lb.	.01¾ @ .01⅞
Inner Tubes		
No. 1, floating	lb.	.09 @ .09¼
No. 2, compounded	lb.	.06½ @ .06¾
Red	lb.	.05¾ @ .05⅞
Mixed tubes	lb.	.05⅞ @ .06
Mechanicals		
Mixed black scrap	lb.	.01 @ .01⅛
Heels	lb.	.00⅞ @ .01
Hose, air-brake	ton	25.00 @ 26.00
regular	ton	20.00 @
No. 1 red	lb.	.02¼ @ .02½
No. 2 red	lb.	.01¾ @ .02
Red packing	lb.	.01¼ @ .01⅜
White, druggists' sundries	lb.	.03½ @ .04
Mechanical	lb.	.01½ @ .01⅝
Tires		
Pneumatic Standard—		
Mixed auto tires with beads	ton	21.00 @ 22.00
Beadless	ton	30.00 @ 31.00
White auto tires with beads	ton	43.00 @ 44.00
Beadless	ton	57.00 @ 58.00
Mixed auto peelings	ton	34.00 @ 35.00
Solid—		
Mixed motor truck, clean	ton	38.00 @ 40.00

The following scrap rubber dealers are listed in our Buyers' Directory. For complete information see Index of Advertisers on Page 110.

Birkenstein, S., & Sons, Chicago, Illinois.
Chalfin, Joseph, & Co., Inc., New York, N. Y.
Cummings, Wm. H., & Sons, New York, N. Y.
Muehlstein, H., & Co., Inc., New York, N. Y.
Norton, M., & Co., Medford, Massachusetts.
Schnurmann, J., London, England.
Weber, Hermann, Hoboken, New Jersey.

Reclaimed Rubber

New York

During June rubber manufacturing companies have drawn heavily on reclaimers' capacity to meet their requirements. Relief from this pressure will soon be afforded by the increased reclaiming capacities now approaching completion. Rubber manufacturers and compounders are intent on securing the highest quality available in reclaims regardless of cost. They have demonstrated such stocks to be the most economical and satisfactory. In order of preference, as indicated by relative volume of demand, these grades are (1) selected tire reclaims, the use of which is increasing in first quality balloon tires, (2) ordinary tire reclaim, and (3) inner-tube reclaims. It is evident that within the past six months actual manufacturing practice has confirmed the findings of rubber technologists as to the economic use of reclaim in part substitution for crude rubber. This justifies and assures to reclaims a new status in the industry from which they will not be dislodged by the fluctuations of crude rubber prices of the future.

In this connection it should be noted that American reclaimers are attacking the technical problems of reclaiming with renewed vigor and expectation of success.

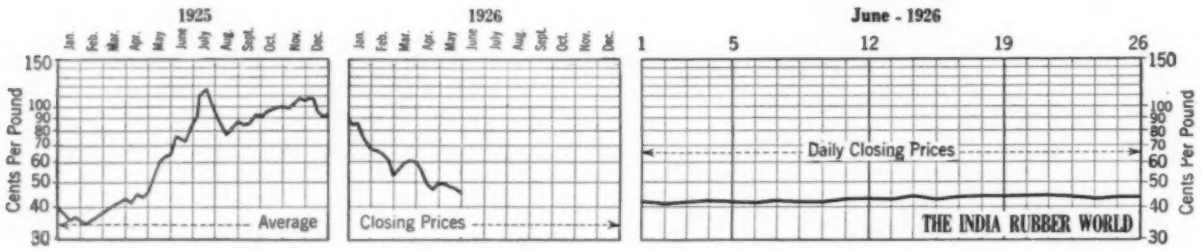
New York Quotations

June 26, 1926

	Specific Gravity	Price Per Pound
Auto Tire		
Black	1.21	$0.10¼ @ $0.10½
Black, washed	1.18	.11½ @ .11¾
Black selected tires	1.20	.11¾ @ .12
Dark gray	1.35	.14½ @ .14¾
Light gray	1.38	.16½ @ .16¾
White	1.40	.18½ @ .19
High Tensile Black		
Super-reclaim, No. 1	1.20	.24 @ .25
No. 2	1.20	.18 @ .19
Shoe		
Unwashed	1.60	.09¾ @ .10
Washed	1.50	.12½ @ .12¾
Tube		
No. 1	1.00	.22 @ .23
No. 2	1.18	.17 @ .18
Uncured Tire Friction		
No. 1	1.00	.32 @ .35
No. 2	1.20	.25 @ .27
Miscellaneous		
High grade, red	1.35	.17½ @ .18
Truck tire, heavy gravity	1.55	.10 @ .10¼
Truck tire, light gravity	1.40	.10½ @ .10¾
Mechanical blends	1.60	.08 @ .09

The following reclaimed rubber dealers are listed in our Buyers' Directory. For complete information see Index of Advertisers on Page 110.

Appleton Rubber Co., Franklin, Massachusetts.
Bloomingdale Rubber Co., New York, N. Y.
Clapp, E. H., Rubber Co., Boston, Massachusetts.
Defiance Rubber Co., Defiance, Ohio.
Nearpara Rubber Co., Trenton, New Jersey.
New Jersey Rubber Co., Lambertville, New Jersey.
Pequanoc Rubber Co., Butler, New Jersey.
Philadelphia Rubber Works, Philadelphia, Pennsylvania.
Rubber Regenerating Co., Naugatuck, Connecticut.
Somerset Rubber Reclaiming Works, New Brunswick, New Jersey.
U. S. Rubber Reclaiming Co., Inc., New York, N. Y.
Vulcan Recovery Co., Trenton, New Jersey.
Xylos Rubber Co., Akron, Ohio.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

THE June rubber market was duller even than that of May. The decline of spot prices below the 50 cent level has persisted since it began early in April and June 29 reached 42.50 cents. London stocks are increasing and consumption is falling off. The market is without any supporting demand on the part of the manufacturers, apparently regardless of how the average London price for the period between May 1 and August 1 will affect restriction for the following 3 months. The average price condition changed but slightly during June for whereas a month ago London spot prices had to average 20.4 pence for 2 months they now have to average 20.2 pence for one month to maintain the required average of 21 pence necessary to avoid 20 per cent reduction from standard production.

Further reasons for the unconcern of rubber manufacturers as to restriction next quarter are found in the large stocks in London and the United States and renewed confidence in the economic possibilities of reclaimed rubber.

Factory interest was practically dead. Buying very spotty and confined to the summer months. Roll brown has been in short supply and in consequence spot has brought 37 cents, which is high in comparison with ribs. Upriver Fine Pará recently sold at 38 cents which was 2 cents under the quoted price. Dealers are hopeful for a better market after July 1.

Futures in New York have run closely in sympathy with the London market caused by arbitrage. This term is defined as the simultaneous buying and selling of any commodity in different markets where it is quoted, in order to make a profit. In other words if rubber were lower in London than in New York arbitrage would be possible by buying in the former city and selling in the latter.

During the last week in May the market was very dull. Those manufacturers who bought did so in small lots and from hand to mouth, only a very few being interested in future positions. Rumor of the weakness of a prominent foreign rubber house exerted some disturbing influence but did not affect the market price. The week closed with prices down 2¼ cents. Both spot ribs and first latex crêpe were quoted May 24, 46½ cents buyers, 46¾ cents sellers. May 28 the prices were 44 cents buyers, 44½ cents sellers.

The first week in June matched the previous week in dullness. Confirmation of the London failure forced spot rubber onto the market which showed no improvement in price nor any improvement in sight or expected in the immediate future. The main factor of weakness was lack of consumer interest. Spot ribs and first latex were quoted the same during the entire week, the figures being 42 cents buyers and 42½ cents sellers.

The second week in June proved extremely dull. No factory interest developed. Dealers continued to refuse shipment offers except at very low figures which they immediately sold on the Rubber Exchange in scalping trades.

The third week in June showed no relief from the earlier dullness. Prices fluctuated only with narrow ranges. The limited demand resulted in scattered buying distributed among various positions and grades. As in the previous week spot ribs and first latex were priced again at identical daily quotations. These were 42¾ cents buyers, and 43 cents sellers.

The fourth week in June was no exception in dullness to those which preceded. There was no factory interest of note. Prices were steady. On June 25 ribs were quoted 43 cents buyers, 43½ cents sellers.

Parás were dull, steady and neglected. Block balata was quiet and unchanged. Sheets were scarce and in fair demand with no shipments.

Importations of all grades in May were 30,411 tons, compared with 36,899 tons one year ago. Plantation arrivals for May were 27,915 tons, compared with 34,187 tons one year ago. Total importations of plantation rubber for five months ended May 31, 1926, were 167,062 tons, compared with 140,877 tons for the corresponding period of 1925. Total importations of all grades of rubber for the five months ended May 31, 1926, were 178,530 tons compared with 151,450 tons for the corresponding period of 1925. Arrivals June 1 to 24 were 23,655 tons.

Arrivals for the full month of June are estimated at 30,500 tons, compared with 30,000 tons in May.

New York Quotations

Following are the New York spot and future rubber quotations for one year ago, one month ago, and June 26, the current date:

Plantation Hevea	June 25, 1925	May 24, 1926	June 26, 1926
Rubber latex (Hevea)...*gal.*	$2.85 @	$1.80 @	$1.80 @
CREPE			
First latex, spot	.78 @.80	.47 @.47¼	.43 @
June-July	.76 @.78	.46½ @.47	.41½ @.42
Aug.-Sept.	.74 @.75	.43 @.43¼	.41½ @.42
Oct.-Dec.	.66 @.67	.42½ @.42¾	.42½ @.43½
Jan.-Mar.	.62 @.63	.42 @.42½	.43½ @.44½
Off latex, spot	.77 @.79	.46 @.46½	.42 @.42½
Amber No. 2, spot	.70½ @.72	.42 @.42½	.37½ @
June-July	.69 @.70	.41½ @.42	.37½ @.38
Aug.-Sept.	.67 @.68	.41 @	.38 @.39
Oct.-Dec.	.60 @.61	.40 @.41	.38 @.39
Jan.-Mar.	.57 @.58	.40 @.41	.38½ @.39½
Amber No. 3, spot	.68½ @.70	.44 @.44½	.36½ @.37
Brown, thin, clean	.68½ @.70	.42 @.42½	.37 @.38
Brown, specky	.66½ @.68	.41½ @.42	.35 @.36
Brown, roll	.62½ @.64	.38 @.39	.33 @.34
Sole crêpe	.83 @	.80 @	@
SHEET			
Ribbed, smoked, spot	.82 @.83½	.46½ @.47	.42½ @
June-July	.79 @.80	.46½ @	.41 @.41½
Aug.-Sept.	.74 @.75	.43½ @	.41 @.41½
Oct.-Dec.	.67 @.67½	.42½ @	.42½ @.42½
Jan.-Mar.	.57 @.58	.43 @	.42½ @.43

New York Spot Closing Rubber Prices—Prices in Cents, Per Pound

PLANTATIONS Sheet	May, 1926 24	25	26	27	28	29*	31*	June 1926 1	2	3	4	5	7	8	9	10	11	12	14	15	16	17	18	19
Ribbed Smoked Crêpe	46¼	45	45¼	44¾	43½	....	....	42½	41¼	42¼	42¾	42½	42¼	42¾	42½	42½	43½	43¾	43¼	44¼	43¼	44	44¼	44¼
First Latex	46¼	44¾	45¼	44¾	43¾	....	....	42½	41¼	42¼	42¾	42½	42¼	42¾	42¾	42¾	43½	43¾	43¼	44¼	43¼	44	44¼	44¼
No. 2 blanket	42¼	41½	41½	40¾	40½	....	....	37¾	37¼	37½	37¾	37¾	37¾	38¼	38¼	38¼	38¾	39½	39½	39¼	38¾	40	39¾	40
No. 3 blanket	41½	40½	40½	39½	39¼	....	....	36¾	36¼	36½	36½	36½	36¾	37¼	37½	37¼	37¾	38½	38½	38½	38	39¼	39	39¼
No. 4 blanket	40	38¾	38½	37¾	37¾	....	....	35¾	35	35	35	35	35¼	35¾	35¾	35¾	36½	37	36¾	37¾	37¼	38¼	38¼	38¾
Thin clean brown	41¾	40½	40¾	39¾	39¼	....	....	37¼	36¼	36¾	37	36¾	37	36¾	37	37½	37½	38	37¾	39	38¾	39½	39½	39¾
Rolled brown	37	36	35¾	35½	35	....	....	32½	31	31¾	32¼	32¼	31½	32	32	32	33¼	34	33¾	35½	34¼	35¾	35¼	35
Off Latex	45¼	43¾	44¼	43½	43	....	....	41¼	40	41	42	41¾	41¼	41¼	42	42	42¼	43¼	42¾	42½	42¼	43	43	43

*Holiday.

	June 25, 1925		May 24, 1926		June 26, 1926	
East Indian						
PONTIANAK						
Banjermassin	.09	@.10	.17¾	@	.15	@.16
Palembang		@		@		@
Pressed block	.15	@	.29½	@	.26	@.28
Sarawak	.09	@		@	.16½	@
South American						
PARAS						
Upriver, fine	.70	@	.38	@	.38	@
Upriver, fine	*.89	@	*.55	@	*.53	@
Upriver, medium	.62	@	.33	@	.33	@
Upriver, coarse	.55	@	.24	@	.22½	@
Upriver, coarse	*.80	@	*.42	@	*.40	@
Islands, fine	.60	@.62	.32	@	.32	@
Islands, fine		@	*.53	@	*.52	@
Cametá	.34	@.36	.25	@.26	.25	@.26
Acre, Bolivian, fine	.71	@	.39	@	.39	@
Acre, Bolivian, fine	*.90	@	*.55	@	*.54	@
Beni Bolivion	.71	@	.39	@	.39	@
Madeira	.72	@	.39	@	.39	@
Peruvian, fine	.68	@	.38	@	.37	@
Tapajos, fine	.69	@	.36	@	.35	@
CAUCHO						
Upper Caucho ball	.57	@	.25	@	.24	@
Upper Caucho ball	*.80	@	*.43	@	*.40	@
Lower Caucho ball	.57	@	.23	@	.22	@
Maniçobas						
Ceará negro heads	†.50	@	†.40	@	.40	@
Ceará scrap	†.35	@	†.20	@	.20	@
Maniçoba 30% guaranty	†.50	@	†.37	@	.37	@
Mangabeira, thin sheet	†.50	@	†.40	@	.40	@
Centrals						
Central scrap	.50	@.51	.21	@	.22	@.24
Central wet sheet		@	.16	@	.12	@.15
Corinto scrap	.50	@.51	.21	@	.22	@.24
Esmeralda sausage	.50	@.51	.21	@	.22	@.24

	June 25, 1925		May 24, 1926		June 26, 1926	
Guayule						
Duro, washed and ried	.52	@	.37	@	.33	@
Leon, washed and dried		@	.32	@	.31	@
Gutta Percha						
Gutta Siak	.18	@.18½	.32	@	.34	@.36
Gutta Soh	.28	@.29		@	.26	@.28
Red Macassar	2.75	@3.00	3.50	@	3.00	@3.50
Balata						
Block, Ciudad Bolivar	.63	@.65	.63	@	.58	@.60
Colombia	.52	@.54	.48	@	.40	@.42
Panama	.52	@.54	.48	@	.38	@.40
Surinam sheet	.76	@.78	.82	@	.75	@.80
amber	.80	@.85	.85	@	.80	@.85
Chicle						
Honduras	‡.58	@.68	‡.64	@	‡.64	@
Yucatan, fine	‡.58	@.68	‡.65	@	‡.65	@

*Washed and dried crêpe. Shipment from Brazil.
†Nominal. ‡ Duty paid.

Comparative Low and High New York Spot Rubber Prices

PLANTATIONS	1926*	June 1925	1924
First latex crêpe	$0.41½@$0.45	$0.69 @$0.85	$0.19⅜@$0.21
Smoked sheet, ribbed	.41½@ .45	.70 @ .87	.18⅜@ .19¾
PARAS			
Upriver, fine	.34 @ .37	.52 @ .71	.20 @ .21¾
Upriver, coarse	.20 @ .24½	.41 @ .54	.13¾@ .14
Islands, fine	.34 @ .35	.48½@ .62½	.18 @ .19
Cametá	.21 @ .24	.25½@ .37	.10½@ .11

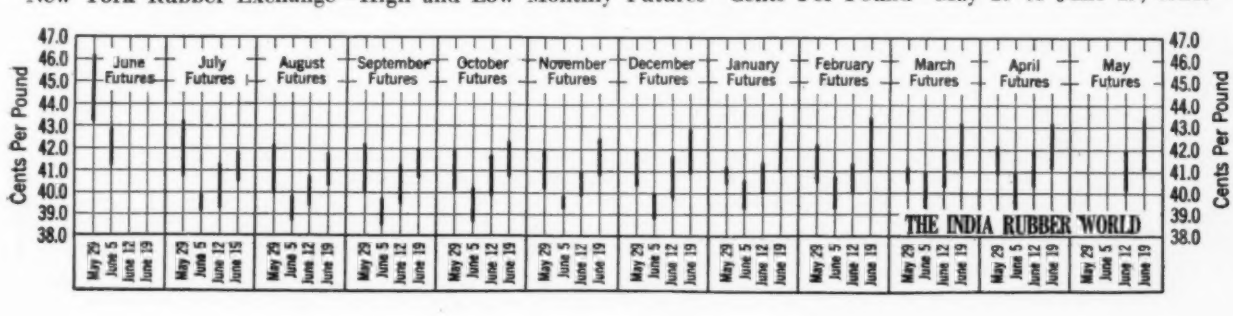
* Figured to June 26, 1926.

The Rubber Exchange of New York, Inc.

Daily Market Futures—Ribbed Smoked Sheets—Closing Prices—Cents Per Pound

1926	May, 1926 24	25	26	27	28	29	31	June, 1926 1	2	3	4	5	7	8	9	10	11	12	14	15	16	17	18	19
June	46.20	45.20	45.00	44.40	43.20	....	....	42.20	41.20	42.20	42.60	42.40	42.10	42.90	42.50	....	....	....	....	....	....	....	....	....
July	43.20	41.80	42.20	41.40	40.70	....	....	39.80	39.10	39.90	40.00	39.90	39.30	39.90	40.10	39.80	40.60	41.30	40.50	41.80	41.00	41.60	41.80	41.90
August	42.20	40.50	41.10	40.80	40.00	....	....	39.20	38.60	39.50	39.90	39.80	39.40	39.90	40.00	39.70	40.80	41.30	40.40	41.80	41.00	41.50	41.80	41.80
September	42.20	40.80	41.00	40.70	40.00	....	....	39.20	38.50	39.50	39.80	39.80	39.50	39.90	40.10	39.80	40.80	41.30	40.70	41.80	41.10	41.50	41.90	42.00
October	42.00	40.50	40.60	40.70	40.10	....	....	39.30	38.60	39.60	40.20	40.00	39.90	39.90	40.30	40.00	41.00	41.70	40.80	42.00	41.50	42.00	42.40	42.40
November	42.00	40.50	41.20	40.70	40.10	....	....	39.20	38.60	39.50	39.80	39.80	39.80	39.90	40.30	40.00	41.00	41.70	40.80	42.00	41.50	42.10	42.30	42.50
December	42.00	40.50	41.20	40.70	40.20	....	....	39.50	38.80	39.50	40.00	40.00	39.70	40.20	40.30	40.00	41.00	41.70	40.90	42.00	41.60	42.20	42.50	42.90
1927																								
January	42.20	40.80	41.00	41.10	40.50	....	....	39.50	39.20	40.10	40.50	40.60	40.00	40.30	40.40	40.20	41.30	41.70	41.00	42.20	41.70	42.60	43.20	43.20
February	42.20	40.80	41.00	41.10	40.50	....	....	39.50	39.20	40.20	40.80	40.60	40.00	40.50	40.30	40.20	41.30	41.80	41.00	42.20	41.70	42.50	43.20	43.20
March	42.20	40.90	41.00	41.10	40.50	....	....	39.50	39.20	40.30	41.00	41.00	40.30	41.00	40.50	40.20	41.30	42.00	41.10	42.20	41.70	42.50	43.20	43.20
April	42.20	40.90	41.00	41.10	40.50	....	....	39.50	39.20	40.30	41.00	41.00	40.30	41.00	40.50	40.20	41.30	42.00	41.10	42.20	41.70	42.50	43.20	43.20
May	....	....	....	....	....	....	....	....	....	40.30	41.00	41.00	40.20	41.00	40.80	40.20	41.30	42.00	41.10	42.20	41.70	42.50	43.20	43.20

New York Rubber Exchange—High and Low Monthly Futures—Cents Per Pound—May 29 to June 19, 1926.



Rubber Exchange of New York, Inc.

Trading on the Rubber Exchange from May 24 to June 24, inclusive, resulted in the sale of a total of 9,755 contracts equivalent to 24,387½ long tons. During the first week of this period, May 24 to 28, the market opened after the London holidays with prices off about 10 points. On the 25th there was a record volume of trading, 1,329 contracts, and prices turned stronger. Later, in the absence of outside interest, the price weakened and declined, due to the anticipated increase in London stocks and the triple American holiday. The market closed with the near positions under pressure, which were freely offered when arrivals indicated ample supplies for the country's needs. Contracts sold during the week totaled 3,450.

In the second week, May 31 to June 5, the market first declined, bringing June position to 40.70 cents, the low for the year, then gained a better tone as trading broadened to cover 10 monthly positions. The week closed with the market strong and advancing in sympathy with London. Contracts during the week totaled 2,092.

In the third week, June 7 to 12, the market was rather quiet and featured by a gradual improvement of prices. The advances were due to short covering and more inquiries on the part of consumers. Total sales of the week were 2,129 contracts.

In the fourth week, June 14 to 19, the tone of the market was more satisfactory although the volume of trade was light. The increasing stocks of spot rubber have caused the growers to offer less for future delivery, thus sending the distant positions to a premium. Total contracts sold this week numbered 1,607.

In the fifth week, June 21 to 26, operations were begun under a change in the rules introducing "new" contracts in place of the "old." The latter will gradually disappear as liquidated. The change was necessitated by the recent adoption of certain changes in the price differentials between the various grades of rubber deliverable on exchange contracts. F. R. Henderson, president of the Exchange, made the following statement in explanation of this change:

"Under the original by-laws the price differentials on good F. A. Q. ribbed smoked sheets and ordinary F. A. Q. ribbed smoked sheets were fixed at two cents and four cents respectively below the price of standard quality ribbed smoked sheets, and on off quality first latex crêpe at two cents below the price of standard quality first latex crêpe.

Under the new amended provision of Section 36, of the by-laws, these price differentials will be fixed by the Adjustment Committee on the 15th day of each month and prevail on deliveries under new contracts during the next following calendar month. These differentials will apply more equitably on any variations in the price of rubber, and together with the intermediate allowances will make a more flexible market.

Inasmuch as amendments to the by-laws affecting the amount of money to be paid or the grade or quality of rubber to be delivered cannot be retroactive with respect to existing contracts, this new amendment will not affect the open contracts for deliveries during the next twelve months entered into prior to June 21, 1926. Therefore the Exchange will be dealing in two contracts during the period required for the liquidation of the present outstanding contracts and such will be known as old and new contracts."

The market for the fifth week was inactive. Distant months were the most active. About the middle of the week prices broke sharply in a quiet market and trade became listless. On June 24 there was a rally after a decline of over ½-cent but trade continued dull. Between June 21 and 24 the number of contracts sold was 477.

It is of interest that four memberships in the Exchange sold this week at prices ranging from $5,800 to $6,200.

The problematical statistical outlook for the next few months together with the lack of sustained trade buying explain the hesitating course of the market. Prices are not yet at a level to encourage buyers. Factories and dealers are still carrying large inventories at values above current prices, and estimate May arrivals to exceed consumption by about 2,000 tons. It is thought probable that London spot prices will average below 21*d* for the quarter. In that event restriction will cause the October-December and January-March positions to sell above their present levels, and the exportable allowance will be 6,300 tons less monthly.

Paul Elbogen & Co. view the rubber situation as follows:

"Granting that through the year 1926 there will be a surplus of rubber, nevertheless this surplus will not be too unwieldy to be distributed among strong hands who are able to carry it. The surplus of stocks up to January 1 last were at a dangerously low point, so that manufacturers would welcome a chance to replenish their stocks. The tire business is the crux of the situation. Should the tire business, which is now not as good as it might be, assume its normal stride by the middle of July and continue through the summer and late fall, rubber should then do better. In this event, however, we do not anticipate any shortage or squeeze, but believe that with a better tire business a good demand will appear, which will send the price of rubber to higher levels."

London

Following the holidays late in May the rubber prices rallied on June 1 to 21½*d* and closed the week on June 5 at 20¾*d*. In the week from June 7 to 12 slight gains were made from day to day and there were no recessions except ¼*d* on June 10. The market closed June 12 steady at 21*d* with not much trading.

In the week from June 14 to 21 the market continued dull and virtually steady since there was only ½*d* fluctuation in spot during the entire week. The highest quotation, that on June 16, was in reaction to the belief that an increase of consumption would be shown by the American report for May. Futures gained ¼*d* in a quiet market and on July 19 spot closed steady at 21*d*.

On June 21 the market was dull and the following day spot was steady at 21*d*, a gain of ¼*d*. This advance was lost on June 23, in an idle market and the price turned soft. On the 24th, it declined to 20½*d* and the market was inactive.

London stocks gained in tonnage as the month progressed and on May 31 passed the 20,000 ton level. The weekly record was as follows: May 31, 20,177 tons; June 7, 20,883 tons; June 14, 22,282 tons; June 21, 22,664 tons.

The Market for Chemicals and Compounding Ingredients

New York

STANDARD compounding ingredients continue to move into consuming channels in steadily increasing volume in all branches of the rubber industry. Prices have shown no marked tendency either upward or downward except that in the case of powdered litharge there have been two small advances due to the rise in pig lead. In spite of the season's late start in tire manufacturing, due to slow moving stocks, the outlook is encouraging for continued increase of demand for tire making ingredient supplies.

ACCELERATORS. Knowledge of the practical use of accelerators has been so widely extended by rubber trade journals, and the sales organizations of the leading accelerators that they are in use in every rubber factory. Thus the total requirements reach a large figure, which is increasing with the growing appreciation of their technical and economic value. The demand for aniline, the original accelerator, still continues for special purposes where facilities are installed for its use.

ANTI-OXIDANTS. The demand for anti-oxidants is brisk because they supply a long felt need. They correspond in the merchandising section of the industry to accelerators in the manufacturing section. Both, in fact, are indispensable.

BENZOL. An excellent demand for benzol continued during the past month. Prices remain very firm and stocks are sold ahead.

CARBON BLACK. Demand and inquiries have both improved. Rubber manufacturers are ordering better following the past few months of comparative quiet. Makers are reported as not contracting goods very far into the future. Prices remain firm.

CLAY. Prices range from $9 to $20 a ton according to preparation and suitability of the material as a reinforcing agent. The adaptations of the various reinforcing ingredients are becoming differentiated. The special value and economy of the better clays result in a heavy and increasing demand.

LITHARGE. Two minor increases of price due to the advance of pig lead have raised litharge one half cent a pound.

LITHOPONE. Contracts for the last half year are being placed on the same scale as that of the first half.

MINERAL RUBBER. The same influences that increased the demand for reclaimed rubber served to increase that for mineral rubber. It has become a main reliance in some lines of compounding.

SOLVENT NAPHTHA. The demand is excellent, prices are unchanged and stocks sold ahead.

ZINC OXIDE. Rubber manufacturers are taking zinc oxide in liberal tonnages and contract movement is large. Prices are firmer.

New York Quotations

June 26, 1926

Accelerators, Inorganic

Lead, carbonate	lb.	$0.10¼	@
Lead, red	lb.	.11½	@
sublimed blue	lb.	.10	@
sublimed white	lb.	.10	@
Lime, R. M. hydrated	ton	15.00	@
Litharge	lb.	.11	@
Magnesia calcined, light, (bbls.)	lb.	.20	@
calcined, md. light (bbls.)	lb.	.07	@
calcined, extra light (bbls.)	lb.	.40	@
calcined, heavy (bbls.)	lb.	.05	@
magnesium, carb., light (bags)	lb.	.06	@ .07
Orange mineral A.A.A.	lb.	.13¾	@
Rubber lead No. 4	lb.		@

Accelerators, Organic

A1	lb.	.26	@ .32
A 5-10	lb.	.34	@ .40
A-7	lb.	.65	@ .90
A 10	lb.	.54	@ .60
A-11	lb.	.70	@ .95
A-19	lb.	.70	@ .95
A-40	lb.	.65	@ .90
Z-88	lb.	.75	@ 1.00
Aldehyde ammonia	lb.	.82	@ .95
Aniline (drums)	lb.	.16½	@ .17
B. B.	lb.		@
D. P. G. salt	lb.	.76	@
Di-ortho-tolylguanidine	lb.	1.08	@
Diphenyl guanidine	lb.	.88	@
Ethylidine aniline	lb.	.65	@
Excellerex	lb.		@
Formaldehyde aniline	lb.	.42	@
Grasselerator 102	lb.	.80	@ .85
552	lb.	4.80	@ 5.00
808	lb.	1.25	@ 1.50
Heptene	lb.		@
Hexamethylene tetramine	lb.	.80	@ .85
Methylene aniline	lb.		@
Methylene dianiline	lb.	.40	@
Monex	lb.		@
No. 999 lead oleate	lb.	.17	@ .18½
R. & H. 50 (100 lb. drums)		.60	@
Super-sulphur, No. 1	lb.	.50	@
No. 2	lb.	.18	@ .25
Tensilac No. 39	lb.	.70	@
No. 41	lb.	.65	@
Thiocarbanilid	lb.	.22	@ .26
Trimene	lb.		@
base	lb.		@

Accelerators, Organic—*(Continued)*

Triphenylguanidine	lb.	$0.69	@ $0.73
Tuads	lb.	4.50	@ 5.00
Vulcone	lb.	.74	@
Zimate	lb.	5.00	@

Acids

Acetic 28% (bbls.)	100 lb.	3.50	@
glacial (carboys)	100 lb.	12.21	@
Oleic	lb.	.09¾	@ .10
Stearic	lb.	.16	@
Sulphuric, 60° (carboys)	100 lb.	1.12½	@

Alkalies

Caustic soda	100 lbs.	3.10	@ 4.00
Sulphite soda	100 lbs.	3.50	@

Anti-Oxidants

Age-Rite	lb.	.85	@ .90
Antox	lb.	.88	@

Colors

BLACK

Bone	lb.	.05½	@ .11
Carbon (see Compound. Ing.)			
A. & W. nonfil No. 1	lb.		@
No. 2	lb.		@
Drop	lb.	.06	@ .10
Lampblack	lb.	.09	@ .50
Thermatomic carbon	lb.	.05	@

BLUE

A. & W. blue	lb.		@
Du Pont, N.	100 lbs.	1.35	@
Marine, A. C.	100 lbs.	1.30	@
Prussian	lb.	.34	@ .35
Ultramarine	lb.	.09	@ .35

BROWN

Sienna, Italian	lb.	.04	@ .08
Umber, Turkey	lb.	.04	@ .06

GREEN

A. & W. green	lb.		@
Chrome, light	lb.	.28	@ .31
medium	lb.	.29	@ .32
dark	lb.	.31	@ .33
Du Pont, G. L.	100 lbs.	.30	@
Y. L.	100 lbs.	.75	@
Oxide of chromium	lb.	.31	@ .48

ORANGE

Du Pont R. O.	100 lbs.	1.30	@
R. X.	100 lbs.	1.30	@
Y. O.	100 lbs.	1.60	@
Y. X.	100 lbs.	1.15	@

Colors—*(Continued)*

RED

A. & W. red	lb.		@
purple	lb.		@
Antimony, golden	lb.	$0.16	@
golden 15/17%	lb.	.20	@
Antimony, crimson	lb.		@
crimson, R.M.P. No. 3	lb.	.48	@
7-A	lb.	.35	@
Z-2	lb.	.19	@
Sulphuret vermilion	lb.	.37½	@
Du Pont R. I.	100 lbs.	2.00	@
R. S.	100 lbs.	1.45	@
Brilliant A. C.	100 lbs.	1.35	@

Iron Oxides

bright red pure domestic	lb.	.12	@
bright red pure English	lb.	.14	@
bright red reduced English	lb.	.11	@
bright red reduced domestic	lb.	.10	@
Indian (maroon), red pure domestic	lb.	.11	@
Indian (maroon), red pure English	lb.	.11	@ .13
Indian (maroon), red reduced English	lb.	.08	@ .10
Indian (maroon), red reduced domestic	lb.	.08	@
Oximony	lb.	.13¼	@
Spanish red oxide	lb.	.03	@ .04
Venetian reds	lb.	.02¼	@ .05½
Vermilion, English quicksilver	lb	1.48	@ 1.62

WHITE

Albalith	lb.		@
Lithopone	lb.	.05½	@ .06⅛
Azolith	lb.	.05⅝	@ .06⅛
Sterling	lb.	.05⅝	@ .06⅛

Zinc Oxide

AAA (lead free)	lb.	.07¼	@ .07¾

Azo (factory):

ZZZ (lead free)	lb.	.07¼	@ .07¾
ZZ (5% leaded)	lb.	.06¾	@ .07¼
Z (8% leaded)	lb	.07⅛	@ .07⅝

French Process

Green seal	lb.	.11⅛	@ .11⅝
Red seal	lb.	.10⅛	@ .10⅝
White seal	lb.	.12⅝	@

Colors

WHITE—(Continued)

Horse Head Brands

Selected	lb.	@	
Special	lb.	@	
XX red	lb.	@	

Leaded Brands

Lehigh	lb.	$0.07⅛ @	$0.07⅝
Standard	lb.	.06⅞ @	.07⅓
Sterling	lb.	.07⅛ @	.07⅝
Superior	lb.	.07⅛ @	.07⅝

Palmerton Process

Kadox, black	lb.	@	
blue	lb.	@	
red	lb.	@	

YELLOW

A. & W. yellow	lb.	@	
Arsenic	lb.	.54 @	
Chrome	lb.	.17½ @	.18¼
Du Pont N.	100 lbs.	4.00 @	
Grasselli cadmium	lb.	1.50 @	
Ochre, domestic	lb.	.01½ @	.02½
imported	lb.	.02½ @	.03½
Oxide, pure	lb.	.09 @	.10½
Zinc, imp.	lb.	.23 @	.24

Compounding Ingredients

Aluminum flake (sacks c.l.)	ton	21.85 @	
(sacks l.c.l.)	ton	24.50 @	
Filler	ton	@	
Silicate	ton	@	
Ammonia carbonate	lb.	.10 @	.14
Asbestine	ton	13.50 @	14.50
Barium, carbonate	ton	50.00 @	55.00
dust	lb.	.05 @	.06
Barytes, imported	ton	30.00 @	
water ground and floated	ton	23.00 @	25.00
Basofor	lb.	.04½ @	
Blanc fixe, dry	ton	85.00 @	90.00
pulp	ton	60.00 @	65.00
Carbon Black			
Aerfloted arrow	lb.	.08½ @	.12½
Compressed	lb.	.09 @	.12
Uncompressed	lb.	@	
Micronex	lb.	@	
Carrara filler	lb.	.01¾ @	
Catalpo (facty.)	lb.	.02 @	
Chalk	lb.	.02½ @	.05¼
Clay, blue ribbon (c. l. fcty.)	ton	14.00 @	
Blue Ridge, dark	ton	9.00 @	
light	ton	12.00 @	
China	lb.	.01½ @	.03½
Dixie	ton	20.00 @	
Langford	ton	12.00 @	
Mineral Flour (Florida)	ton	@	
Suprex	ton	14.00 @	26.00
Tuscan	ton	12.00 @	
White floss	ton	17.00 @	
Cotton flock, black	lb.	.11½ @	.12½
light-colored	lb.	.12 @	.14
white	lb.	.14 @	.26
Cotton linters clean mill run	lb.	@	
Fossil flour	lb.	.03 @	
Glue, high grade	lb.	.16 @	.23
medium	lb.	.18 @	.24
low grade	lb.	.15 @	.17

New York Quotations

June 26, 1926

Compounding Ingredients—(Continued)

Infusorial earth	lb.	$0.02½ @	$0.05
Mica, amber (fact'y)	lb.	.05 @	
Diamond	lb.	@	
Pumice stone, powd	lb.	.02½ @	.04
Rotten stone (bbls.)	lb.	.02½ @	.10
Slate flour (fact'y c. l.)	ton	@	
Soap bark	lb.	.12 @	
Soapstone	ton	15.00 @	22.00
Sodium bicarb	100 lbs.	1.80 @	
Starch, powd. corn			
Buffalo (bbls.)	100 lbs.	3.39 @	3.49
Buffalo (bags)	100 lbs.	3.12 @	3.22
Talc, domestic	ton	25.00 @	
French	ton	18.00 @	55.00
Terra blanche	ton	@	
Whiting:			
Commercial	100 lbs.	.85 @	1.00
English, cliffstone	100 lbs.	1.50 @	
Quaker	ton	13.00 @	
Sussex	ton	8.00 @	
Westminster Brand	100 lbs.	@	
Witco (c.l.) (fact'y)	ton	12.00 @	
Whiting, imp. chalk	100 lbs.	@	
Paris White, Eng. Cliffstone	100 lbs.	@	
Wood flour	ton	40.00 @	
Pulp, XXX (fact'y)	ton	35.00 @	
X (fact'y)	ton	25.00 @	

Mineral Rubber

Genasco (facty.)	ton	50.00 @	52.00
Gilsonite (fact'y)	ton	37.14 @	39.65
Granulated M. R.	ton	33.00 @	38.00
Hydrocarbon, hard	ton	29.00 @	35.00
Hydrocarbon, soft	ton	29.00 @	35.00
Ohmlac Kapak, M-R	ton	@	
K-4	ton	@	
320/340 m. p. hydrocarbon	ton	47.00 @	52.00
300/310 m. p. hydrocarbon	ton	42.00 @	47.00
Paradura (fact'y)	ton	70.00 @	72.50
Pioneer, M. R., solid (fac.)	ton	42.00 @	44.00
M. R. granular	ton	52.00 @	54.00
Robertson, M. R. solid (facty.)	ton	35.00 @	75.00
M. R. gran. (facty.)	ton	42.00 @	80.00

Oils (Softeners)

Castor, No. 1, U. S. P.	lb.	.12¼ @	
No. 3, U. S. P.	lb.	.12¼ @	
Corn, crude (bbls.)	lb.	.14½ @	
Cotton, summer yellow	lb.	.14½ @	
Cycline	gal.	.27 @	.38
Glycerine	lb.	.28 @	.29
Linseed, raw	lb.	.1070 @	
Liquid rubber	lb.	.12 @	
Palm lagos	lb.	.09¼ @	
niger	lb.	.08⅞ @	
Peanut, crude	lb.	.14½ @	
refined	lb.	.16 @	
Petrolatum, standard	lb.	.06 @	.08
sticky	lb.	.08 @	.10
Pine, steam distilled	gal.	@	
Plastone	lb.	.39 @	
Rapeseed, refined	gal.	.92 @	
Rosin	gal.	@	
Synthecite	lb.	.06 @	
Tackol	lb.	.09 @	.15
Tar	gal.	@	
Virol	lb.	.10 @	

Resins and Pitches

Pitch, Burgundy	lb.	@	
Coal tar	bbl.	$9.50 @	$10.00
Fluxol hardwood	lb.	.02 @	.04
Pine tar, retort	lb.	@	
ponto	lb.	@	
Rosin, K (bbl.)	280 lbs.	@	
strained (bbl.)	280 lbs.	@	
Shellac, fine orange	lb.	.70 @	
Tar, pine, retort	bbl	@	
kiln	bbl.	@	

Solvents

Benzol (90%, 7.21 lbs. gal.) pure	gal.	@	
Carbon bisulphide (10.81 lbs. gal.) 99.9% pure (drums)	lb.	.05½ @	.06¼
tetrachloride (13.28 lbs. gal.) 99.7% pure (drums)	lb.	.06¼ @	.08
Gasoline No. 303			
Tankcars	gal.	.23 @	
Drums, c. l.	gal.	.26 @	
Drums, l. c. l.	gal.	.29 @	
Naphtha			
68° Bé., 122°, 324°	gal.	.20 @	
70° Bé., 114°, 314°	gal.	.21 @	
71° Bé., 112°, 304°	gal.	.22 @	
Turpentine, spirits	gal.	.89 @	.90
wood, steam distilled	gal.	.80 @	.84

Substitutes

Black	lb.	.08½ @	.14
Brown	lb.	.09 @	.16
White	lb.	.10 @	.17

Vulcanizing Ingredients

Sulphur chloride	lb.	.06 @	
Soft rubber, 100% pure (c.l.)	100 lbs.	2.60 @	2.85
(l.c.l.)	100 lbs.	2.90 @	3.15
Sulphur, Brooklyn brands			
Refined velvet (bbls.)	240 lbs.	@	
(bags)	150 lbs.	@	
Superfine flour (bbls.)	100 lbs.	2.55 @	3.10
(bags)	100 lbs.	2.20 @	2.75
Tire brand, superfine	100 lbs.	2.15 @	2.50
Tube brand, velvet	100 lbs.	2.55 @	2.85

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com.	lb.	.55 @	
carnauba	lb.	.38 @	.50
ceresine, white	lb.	.12½ @	
montan	lb.	.07 @	.07½
ozokerite, black	lb.	.30 @	
green	lb.	.32 @	
Paraffin			
122/124 white crude scale	lb.	.06 @	
124/126 white crude scale	lb.	.06⅛ @	
120/122 fully refined	lb.	.06¼ @	
125/127 fully refined	lb.	.06¼ @	

SYMPOSIUM ON RAW RUBBER

At the Philadelphia meeting of the American Chemical Society, September 8-10, 1926, the Rubber Division is to hold a symposium on raw rubber. The discussion will include botanical, chemical, technical and engineering problems. The basic idea of the symposium is to present new facts and ideas and the speakers will confine themselves to new information and data which they will present in detail and discuss critically. The promise of new facts and original ideas from leading authorities indicates the importance of the symposium to all rubber chemists and technologists.

Eminent authorities of international reputation have promised to discuss the following topics and arrangements are nearing completion for prominent speakers on other problems of raw rubber.

1. Scientific Developments in the Plantation Rubber Industry.
2. Wild Rubber, South American and African.
3. Guayule Rubber, its Botany, Chemistry and Technology.
4. Synthetic or Artificial Rubber.
5. Alternative Materials for Rubber.
6. Rubber as a National Asset.
7. The Physical Structure of Rubber.
8. The Examination and Testing of Rubber.
9. A Comparison of the Physical Properties of Raw Rubber with those of Compounded Vulcanized Rubber.

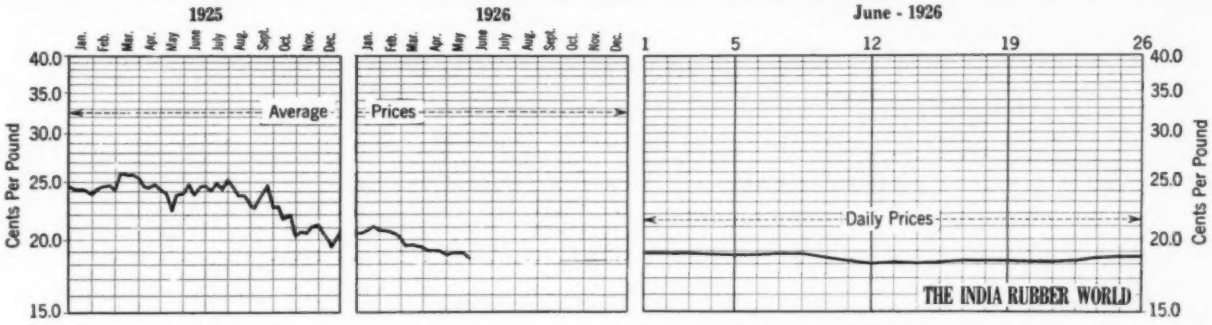
The Rubber Division will also have a banquet on Thursday evening, September 9, at which some of the leading executives of the American rubber industry are to be present.

AMERICAN CHEMICAL SOCIETY TO CELEBRATE GOLDEN JUBILEE

The American Chemical Society, founded in 1876, will celebrate September 6 to 11, 1926, in Philadelphia, Pennsylvania, its fiftieth anniversary. The society will meet in eighteen divisional gatherings, one of the most important of the sessions being devoted to rubber chemistry.

SYNTHE-PLASTIC

Synthe-Plastic is a rubber softener of general utility in all types of rubber compounds. It is in solid form and is characterized by the following features: very low cost, no odor, eliminates the use of mold lubricants, and improves the aging quality of rubber stocks. Chemically it is a reaction product of a terpene base, and contains no waxes or pitches.



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The June market for spot middlings was generally dull with narrow fluctuations and persistent downward tendency to June 9. When the price reacted upward for the next 10 days. The prices at the close of each successive week were as follows: June 5, 18.70 cents; June 12, 18.00 cents; June 19, 18.35 and June 26, 18.70 cents. There have been no indications of an upward turn of the market owing to the continuance of weather conditions favorable to a large crop. Any sustained advance is impossible under these conditions. The market is described professionally as a trader's market. Weather in the cotton belt is now the dominating factor. Its character for the next three months will determine the crop. The expectation of lower prices causes buyers to defer their purchase of goods.

EGYPTIAN COTTON. Fine staple cottons have declined in sympathy with the drop in the New York market but even at today's levels buyers consider staples too dear. During the early part of the month there was some filling-in by mills which gave the appearance of a revival of demand, but this has almost entirely disappeared and both here and in Egypt there is great difficulty in obtaining bids. The lower grades are in better demand than the higher grades. Prices are nominal and tend in buyers' favor.

It looks now as though the carry-over of staples at the end of the present season may be unusually large and all reports of growing crops in the staple areas indicate a very large yield this season. If such turns out to be a fact, an easing of prices may be expected from now to October.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The market for mechanical fabrics continues quiet. Increased activity is expected to follow semi-annual stock taking July 1. In drills and osnaburgs there is some activity for limited yardages for prompt delivery.

RAINCOAT FABRICS. Nothing new has transpired in the raincoat trade except there has been considerable business on very low-priced colored rubber surface coats. General lines are quiet. There is a steady demand for novelties but in these items volume is lacking.

SHEETINGS. The market is in a very inactive condition with only small buying for immediate requirements. Prices are inclined to be soft with tendency toward lower levels. Mills are considering further curtailment of production and are ready to listen to offers. Without question the cotton trade is suffering from overproduction of manufactured goods. At present there are no indications of immediate improvement.

TIRE FABRICS. The market is very quiet. Prices are considered nominal. Consumers are holding off and buying only small spot lots. The tire fabric situation is considered moderately satisfactory. The mills are operating on normal schedules. Some mills are sold ahead to the extent of four months' production. Most mills could take on more third quarter contracts. There is no present interest in contracts for the first quarter in 1927. There has been some inquiry for special constructions but no special incentive for future purchasing. No combed yarns are now being used.

Very little Egyptian or peeler is required since tire manufacturers have adopted 6-ply in place of 4-ply construction in balloon tires. The increasing use of off color cotton in tire construction is an unsettling influence in the current fabric situation. Although the tire cost economy is small it suffices to raise the problem of meeting such competition by the largest fabric producers in the business.

New York Quotations

June 26, 1926

Drills

38-inch 2.00-yard	*yard*	$0.16½@
40-inch 3.47-yard		.09½@
52-inch 1.90-yard		.17⅝@
60-inch 1.52-yard		.22⅛@

Ducks

38-inch 2.00-yard	*yard*	.17 @
40-inch 1.47-yard		.23⅛@
72-inch 16.66-ounce		.40⅝@
72-inch 17.21-ounce		.41¾@
MECHANICAL		
Hose and belting	*pound*	.33 @
Specials		.37 @
TENNIS		
52-inch 1.35-yard	*yard*	.25½@

Hollands

DEAD FINISH		
Standard, 37-inch	*yard*	.19½@
42-inch		.23½@
RED SEAL		
36-inch		.16 @
40-inch		.16½@
50-inch		.26 @
FLAT FINISH		
Imperial, 36-inch		.15½@
40-inch		.17½@

GOLD SEAL

40-inch		$0.23 @

Osnaburgs

40-inch 2.35-yard	*yard*	.14⅜@
40-inch 2.48-yard		.13⅝@
40-inch 3.00-yard		.11⅜@
37-inch 2.42-yard		.14⅛@

Raincoat Fabrics

COTTON		
Bombazine 64 x 60	*yard*	.11½@
Bombazine 60 x 48		.10¼@
Plaids 60 x 48		.11 @
Plaids 56 x 44		.10½@
Surface prints 60 x 48		.11½@
Surface prints 64 x 60		.12½@

Sheetings, 40-inch

48 x 48, 2.50-yard	*yard*	.12⅛@ .13
48 x 48, 2.85-yard		.11⅛@ .11½
64 x 68, 3.15-yard		.12½@ .12¾
56 x 60, 3.60-yard		.10 @ .10⅛
48 x 44 3.75-yard		.08½@ .08¾

Sheetings, 36-inch

48 x 48, 5.00-yard	*yard*	$0.06⅞@$0.07
40 x 40, 6.15-yard		.05⅞@

Tire Fabrics

SQUARE WOVEN 17¼-ounce		
Egyptian, karded	*pound*	.48 @ .50
Peeler, karded		.42 @ .44
CORD 23/5/3		
Egyptian, combed	*pound*	.58 @ .60
Egyptian, karded		.48 @ .51
Peeler, combed, 1 1/16-in.		.49 @ .50
Peeler karded, 1 1/16-in.		.45 @ .47
CORD 23/4/3		
Peeler, karded	*pound*	.46 @ .48
CORD 13/3/3		
Peeler, karded	*pound*	.41 @ .43
LENO BREAKER		
8-oz. Peeler, karded	*pound*	.41 @ .43
10-oz. Peeler, karded		.41 @ .43
CHAFER		
8.25-oz. Peeler, karded (2 ply)	*pound*	.40 @ .42
9.5-oz. Peeler, karded (4-ply)		.41 @ .44
12-oz. Peeler, karded		.42 @ .43
14-oz. Peeler, karded		.42 @ .43

The Cotton Outlook

THE difficulties now prevailing in the cotton industry have during the past few weeks occasioned much public and private discussion, while the newspapers reporting the various conferences make much of certain phrases such as 'Reformation in the Cotton Industry," "Nationalism Must Replace Sectionalism," "Stability for the Cotton Industry," "Over-Production Means Under-Distribution," "Adjusting Output to Demand," "Universal Cotton Staple Standards," "Textile Institute," etc., etc.

In regard to forming the Textile Institute, so strongly endorsed by some, there is considerable reason for questioning whether such a measure would offer any true relief from the problems now harassing the industry. *The Journal of Commerce* expresses itself strongly in a recent editorial entitled "Statistics or Control?" saying in part:

It is a fact well worthy of note that most of the current discussion of the "Institute" being planned by southern cotton textile interests ostensibly for the purpose merely of gathering and disseminating information seems to assume that this organization, once it is functioning, will, in fact, undertake a good deal more than appears on the surface. Of course, a large part of such conversation occurs in quarters hostile to the whole idea, and is based upon the assumption that this "Institute" is intended in essence to be a controlling agency for the purpose of eliminating competition.

Not only would it be a bad thing for the textile industry and for the country for any important group of such manufacturers to attempt more or less surreptitious restraint of trade, but no better way could be found to give the whole movement for better and enlarged statistical information of a current nature a black eye.

The cotton textile industry of this country has for several years been struggling under handicaps and hardships that are hard to eliminate. The situation is but a rather extreme example of what faces a goodly number of our other industries or is likely to face them before very long. In none of them can we afford to give support to counsels of weakness or timidity that would resort to monopoly to relieve them of their troubles.

Planning Reorganization of Cotton Industry

Many leaders in the cotton industry, representing both the North and the South, were in attendance at a meeting held June 10 in New York City, when plans for the reorganization of the industry on a national scale were discussed. Shortly before the close of the session a resolution was adopted to have a committee of ten members, five to be appointed by the president, W. B. MacColl, of the National Association of Cotton Manufacturers, and five to be named by James P. Gossett, head of the American Cotton Manufacturers' Association. This committee will make a study of the organization of other industries on a national scale, such as the steel industry, and following the completion of their inquiry as to what plan will best meet the problems of the cotton industry will later make their report.

Cotton men generally are seeing the wisdom of forming plans for the curtailment of cotton production, some advising that the mills of the country reduce their output 15 to 20 per cent annually, still others advocating decreases of from 20 to 50 per cent. Speakers at the meeting stressed the need of replacing individual efforts by cooperative accomplishment, saying also that national interests should first be considered, rather than those that are merely sectional.

As to the necessity for cooperative measures and a more careful study of market conditions *The Textile World* states in part in a recent editorial:

Opinions will differ as to the relative importance of technical and market research—and also as to the possible correlation of the two efforts. However, both are vitally necessary, and it is probable that the exigencies of the present situation demand immediate action tending to alleviate the evils created by the practice of manufacturing goods in utter ignorance of existing balance between supply and demand. Furthermore it is logical to assume that cooperative action in this direction would intensify the spirit of mutual responsibility and would lead eventually to further effort in the direction of technical research. . . . When advocates of research, whether technical or statistical, reach the stage of willingness to subordinate all considerations of personal jealousy and pride to the common good, the backbone of resistance to a broad program will be broken.

Cotton Acreage Estimates

Considerable variation appears in the recent estimates regarding American cotton acreage. The Fairchild figure is 47,310,000 acres, a decrease of 1.7 per cent from the planted area last year; *The Journal of Commerce* quotes 46,367,000, while A. A. Housman-Gwathmey & Co. claim an increase over last year of 0.6 per cent, or a total of 48,380,000 acres. As contributing toward these large totals, the rapid development of the cotton industry of Texas during recent years is said to be an important factor, the area planted to cotton last year totaling 19,139,000 acres, or an increase in acreage during the past four years of almost 80 per cent. On the other hand certain sections of the country show a decrease, the growers in the Salt River Valley, Arizona, planting this season only 90,000 acres of cotton, 30,000 in Pima and the balance in the short staple variety. The number of bales to be produced is also variously estimated, from 13,000,000 to 14,563,000, the latter being the Fairchild figure.

Dr. Lewis H. Haney, director of the Business Research Bureau of the New York University, says in part in referring to the country's cotton prospects:

Clearly the new crop is as yet a gamble. There is plenty of opportunity for improvement and another large crop is easily possible. On the other hand, conditions have not been favorable this Spring and it is just as easily possible that a large acreage may be abandoned and the yield per acre on the balance be small. Our opinion (and it is only a guess) is that the known facts concerning acreage condition and weevil emergence throw the balance of probability in favor of a fairly large crop,—say one in the neighborhood of 14¾ million bales. If anything approaching 15 million bales were to be produced, we feel that lower prices would result. This seems to be the most that can be said.

New System of Cotton Reporting

The Federal crop reporting board has practically decided to issue three quantitative figures in each of its semi-monthly cotton crop reports, the change commencing with the July 2 issue. The first of these figures will be the board's forecast based on the present condition of the crop; the second will assume that present conditions equal the best of any for the past ten years, this forecast representing the maximum that the crop may reach; while the third figure takes into account the minimum size of the crop. It is believed by government officials that the issuing of three figures in each report will minimize the speculative effects on the cotton markets following the issue of the previous reports.

Growth of Cotton Marketing Associations

According to the United States Department of Agriculture, about 9 per cent of the 1925 cotton crop was handled by farmers' cooperative marketing associations, these reports also showing that for the present season the total business of sixteen of these larger associations will be approximately 1,500,000 bales. Twelve of these sixteen divisions now active in handling cotton are members of the American Cotton Growers' Exchange, an organization formed in 1921 as a service and coordinating agency.

REPORT OF RIMS INSPECTED AND APPROVED BY THE TIRE AND RIM ASSOCIATION OF AMERICA, INC.

Rim Size	May, 1926 Number	May, 1926 Per Cent	Five Months, 1926 Number	Five Months, 1926 Per Cent
Motorcycle Rims				
24 x 3	154	0.0	15,578	0.2
26 x 3	7,582	0.3	41,918	0.4
28 x 3	.....	...	2,377	0.0
Clincher Rims				
30 x 3	1,058	0.0	2,302	0.0
30 x 3½	240,593	11.0	1,619,780	14.6
31 x 4	.....	...	15,609	0.2
Balloon Rims				
25 x 3½	.....	...	722	0.0
26 x 3½	15,610	0.8	16,152	0.2
27 x 3½	.....	...	26	0.0
28 x 3½	980,903	45.2	4,407,267	39.8
29 x 3½	.....	...	.....	...
27 x 4	72	0.0	72	0.0
28 x 4	241,157	11.1	1,223,838	11.0
29 x 4	313,661	14.4	1,485,006	13.4
30 x 4	231	0.0	2,946	0.0
27 x 4½	.....	...	.....	...
29 x 4½	19,421	0.9	208,389	1.9
30 x 4½	105,423	4.8	758,073	6.7
31 x 4½	5,459	0.3	21,044	0.2
30 x 5	32,197	1.5	142,745	1.3
31 x 5	39,813	1.8	216,205	2.0
33 x 6	9,357	0.4	60,049	0.5
High Pressure Rims				
30 x 3½ SS	9,088	0.4	64,878	0.6
32 x 3½	2,306	0.1	4,660	0.0
31 x 4	4,006	0.2	10,183	0.1
32 x 4	9,722	0.4	85,904	0.8
33 x 4	508	0.0	3,978	0.0
34 x 4	.....	...	.....	...
32 x 4½	22,813	1.0	185,055	1.7
33 x 4½	.....	...	496	0.0
34 x 4½	2,930	0.1	10,140	0.1
Truck, 20-inch				
30 x 5	66,188	3.0	275,925	2.5
32 x 6	26,907	1.2	103,667	0.9
34 x 7	3,611	0.2	16,829	0.2
36 x 8	282	0.0	3,869	0.0
40 x 10	109	0.0	189	0.0
Truck, 24-inch				
34 x 5	6,494	0.3	21,211	0.2
36 x 6	7,876	0.4	42,606	0.4
38 x 7	1,821	0.1	9,320	0.1
40 x 8	1,373	0.1	4,955	0.0
44 x 10	92	0.0	393	0.0
36 x 7	130	0.0	1,186	0.0
Total	2,178,947	100.0	11,085,542	100.0

	Per Cent		Per Cent
Motorcycle	0.3	Motorcycle	0.6
Clincher	11.0	Clincher	14.8
Balloon	81.2	Balloon	77.0
High Pressure	2.2	High Pressure	3.3
Truck—20-inch	4.4	Truck—20-inch	3.6
Truck—24-inch	0.9	Truck—24-inch	0.7

NOTE—4,982 of the 26 x 3 rims and all 24 x 3 rims inspected this month are 3" auto section.

British Malaya

Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that the amount of rubber exported from British Malaya in the month of May last totaled 31,231 tons. The amount of rubber imported was 10,604 tons, of which 8,421 tons were declared as wet rubber. The following are comparative statistics:

	1925 Gross Exports Tons	1925 Foreign Imports Tons	1926 Gross Exports Tons	1926 Foreign Imports Tons
January	19,183	10,132	30,452	10,237
February	21,622	10,071	30,440	8,306
March	26,836	13,399	35,012	14,800
April	22,414	11,750	23,727	10,565
May	26,667	12,979	31,231	10,604
Totals	116,722	58,331	150,862	54,512

Distribution

The following is a comparative return of distribution of shipments during the months of April and May, 1926:

	April, 1926 Tons	May, 1926 Tons
United Kingdom	4,911	5,921
United States of America	16,015	20,422
Continent of Europe	1,609	2,999
British possessions	402	512
Japan	771	1,346
Other foreign countries	19	31
Totals	23,727	31,231

Dealers' Stocks of Rubber

An official cablegram from Singopore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that dealers' stocks of rubber on May 31, 1926, were in Singapore 14,175 tons, and in Penang 2,792 tons.

Metal Market Review

New York

All the markets became more active during the middle and last of June, while prices were higher and a better tone in general was noted. Copper, tin, and zinc were bought on rising prices, while the advance in lead was especially rapid, accompanied by heavy purchasing. In the steel market improvement was also evident, several large producers finding the second week in June the best for orders since the latter part of March.

ALUMINUM. Press reports state that the Aluminum Company of America has advanced prices one cent to 28 cents a pound for the 99 per cent grade of metal and 27 cents for the 98 per cent grade. Demand for remelted metal continues good.

ANTIMONY. The market is firmer, following the decline in price for futures to 8 cents, c. i. f. New York. The June-July and July-August shipments are holding steadily to this level.

COPPER. Authorities seem to combine in stating that there is a slow but continued improvement in the American copper market, while sales for foreign consumption are also reported heavy. *The Journal of Commerce* says: Conditions in the copper industry are bright, the backbone of optimism being the increased domestic consumption, particularly in the building trades. The American Bureau of Metal Statistics reports the consumption of copper by the automotive industry in 1925 as being 212,800,000 pounds, compared with 187,400,000 in 1924 and 84,000,000 in 1921.

LEAD. During the middle of June occurred one of those runaway markets which lead is said to experience three or four times a year, consumers buying heavily even after the 8-cent level was reached. On June 19 the extreme high price at New York for prompt lead was 8.40 cents.

STEEL. Although steel ingot production in May dropped 4½ per cent from that of April, according to figures prepared by the American Iron and Steel Institute, the immediate future for the industry is said to be most satisfactory. *The New York Times* states: The steel industry is doing decidedly better in point of tonnage this year than last, even though last year made a new calendar year record for production. It has not only done better to date than last year, it has a better trend, as each of the first three months of this year showed slightly heavier production than the same month of last.

TIN. The tin market continued firm during the latter part of June, with prices in the main showing an upward tendency. Consumers are said to be well covered for June, July and August delivery.

ZINC. Following a rise in prices during the early part of June came a slow decline, the highest figure during the advance being 7.25 cents a pound, East St. Louis.

Basic Metals

JUNE 26, 1926

	Cents per pound	
Aluminum, virgin, 98@99 per cent	27.00	@
Antimony	13.50	@14.00
Copper—Lake, spot	14.00	@14.25
Electrolytic, spot	13.90	@13.95
Castings, refinery	13.25	@
Lead, spot, New York	8.25	@ 8.30
Lead, spot, East St. Louis	8.10	@ 8.15
Nickel, ingot, pound	35.00	@
Tin, spot	61.75	@
Zinc, spot, New York	7.55	@ 7.575
Zinc, spot, East St. Louis	7.20	@ 7.225

Steel Wire

	Base per 100 lbs.	
Bright, plain wire No. 9 gage	$2.50	@
Annealed fence wire	2.65	@
Galvanized wire No. 9	3.10	@
Spring wire	3.50	@

Copper Wire

BASE PRICE F. O. B. FACTORY

	Cents per pound	
Bare copper wire	16.00	@
No. 6. B. & S. gage	16.00	@
No. 8 B. & S. gage	16.00	@
No. 14 B. & S.	17.00	@

United Kingdom Rubber Statistics

Imports

UNMANUFACTURED Crude Rubber From—	April, 1926 Pounds	April, 1926 Value	Four Months Ended April, 1926 Pounds	Four Months Ended April, 1926 Value
Straits Settlements	12,896,400	£1,446,981	45,208,400	£6,178,419
Federated Malay States	6,169,500	684,643	19,990,200	2,592,624
British India	869,000	90,595	4,598,100	659,094
Ceylon and Dependencies	3,560,000	396,637	14,856,300	2,003,514
Other Dutch possessions in Indian Seas	1,171,900	141,525	5,006,200	679,918
Dutch East Indies (except other Dutch possessions in Indian Seas)	2,735,100	312,934	8,800,900	1,166,664
Other countries in East Indies and Pacific, not elsewhere specified	62,200	6,907	650,700	87,064
Brazil	874,400	90,707	3,923,700	540,652
Peru	60,800	5,525	61,600	5,660
South and Central America (except Brazil and Peru)	23,300	1,863	67,600	8,588
West Africa				
French West Africa	178,300	7,849	1,210,600	113,744
Gold Coast	87,800	5,329	474,000	36,434
Other parts of West Africa	147,700	12,653	872,600	96,007
East Africa, including Madagascar	161,200	16,310	647,600	77,619
Other countries	92,400	11,786	493,400	74,437
Totals	29,030,000	£3,232,244	106,861,900	£14,320,438
Waste and reclaimed rubber	661,700	10,811	2,675,400	50,065
Gutta percha and balata	366,300	45,705	3,013,100	432,618
Rubber substitutes	31,900	1,766	45,400	2,253
Totals	30,089,900	£3,290,526	112,595,800	£14,805,374
MANUFACTURED				
Boots and shoes...*doz. pairs*	53,222	£93,093	155,884	£303,701
Tires and tubes				
Pneumatic				
Outer covers	.....	239,742	.....	1,680,579
Inner tubes	.....	49,927	.....	252,825
Solid tires	.....	38,911	.....	120,945
Other rubber manufactures	.....	162,232	.....	602,547
Totals	.....	£583,905	.....	£2,960,597

Exports

UNMANUFACTURED				
Waste and reclaimed rubber	2,056,300	£26,287	10,285,500	£133,574
Rubber substitutes	48,000	1,125	426,300	9,950
Totals	2,104,300	£27,412	10,711,800	£143,524
MANUFACTURED				
Boots and shoes...*doz. pairs*	19,150	£30,582	71,701	£114,341
Tires and tubes				
Pneumatic				
Outer covers	.....	276,403	.....	1,095,682
Inner tubes	.....	59,323	.....	234,498
Solid tires	.....	31,325	.....	153,279
Other rubber manufactures	.....	270,069	.....	1,037,447
Totals	.....	£667,702	.....	£2,635,247

Exports—Colonial and Foreign

UNMANUFACTURED Crude Rubber From—	April, 1926 Pounds	April, 1926 Value	Four Months Ended April, 1926 Pounds	Four Months Ended April, 1926 Value
Russia	900,900	£180,328	4,947,800	£950,944
Sweden, Norway and Denmark	252,700	34,922	816,800	119,687
Germany	1,565,200	193,682	4,050,300	574,103
Belgium	371,800	48,984	933,700	134,675
France	3,126,400	408,173	9,369,100	1,422,341
Spain	91,300	13,156	378,500	63,543
Italy	1,224,900	155,904	4,048,900	620,380
Other European countries	214,800	29,129	496,700	78,838
United States	2,666,700	362,409	20,634,300	3,431,375
Canada	.....	.....	29,200	5,396
Other countries	79,500	13,784	268,400	48,879
Totals	10,494,200	£1,440,471	45,973,700	£7,450,161
Waste and reclaimed rubber	34,100	1,123	109,500	3,471
Gutta percha and balata	19,900	2,974	123,800	19,483
Rubber substitutes	.....	.....	.....	.....
Totals	10,548,200	£1,444,568	46,207,000	£7,473,115
MANUFACTURED				
Boots and shoes...*doz. pairs*	836	£1,954	1,948	£6,054
Tires and tubes				
Pneumatic				
Outer covers	.....	33,198	.....	120,065
Inner tubes	.....	4,415	.....	19,532
Solid tires	.....	3,667	.....	7,042
Other rubber manufactures	.....	8,446	.....	25,392
Totals	.....	£51,680	.....	£178,085

Dominion of Canada Rubber Statistics

Imports of Crude and Manufactured Rubber

UNMANUFACTURED	March, 1926 Pounds	March, 1926 Value	Twelve Months Ended March, 1926 Pounds	Twelve Months Ended March, 1926 Value
Rubber, gutta percha, etc.				
From United Kingdom	44,800	$48,122	2,558,382	$1,349,252
United States	4,103,176	2,524,860	37,050,824	25,885,790
Straits Settlements	412,342	333,072	5,575,483	3,553,860
Dutch East Indies	84,676	76,560	1,384,990	1,061,170
France	8,550	2,805	77,558	38,442
Other countries	4,500	3,240	165,883	94,057
Totals	4,658,044	$2,988,659	46,813,120	$31,982,571
Rubber, recovered	921,143	$105,612	7,955,020	$981,763
Rubber, powdered and rubber or gutta percha scrap	984,016	47,813	5,838,099	351,052
Balata	.....	.....	2,437	2,064
Rubber substitutes	101,938	18,499	764,022	118,791
Totals	2,607,097	$171,924	14,559,578	$1,453,670
PARTLY MANUFACTURED				
Hard rubber sheets and rods	12,162	$7,304	269,616	$192,222
Hard rubber tubes	.....	1,568	.....	2,904
Rubber thread not covered	29,873	41,726	160,461	190,924
Totals	42,035	$50,598	430,077	$386,050
MANUFACTURED				
Belting	.....	$33,020	.....	$256,751
Hose	.....	17,278	.....	165,190
Packing	.....	7,539	.....	53,758
Boots and shoes.....*pairs*	645	1,510	53,758	86,304
Clothing, including waterproofed	.....	26,264	.....	190,531
Gloves	.....	2,438	.....	17,516
Hot water bottles	.....	2,450	.....	21,396
Tires, solid .....*number*	120	6,331	1,089	43,554
Tires, pneumatic ....*number*	5,045	33,977	33,880	449,602
Tires, tubes .....*number*	2,304	5,551	22,391	58,356
Elastic, round or flat	.....	26,810	.....	223,699
Mats and matting	.....	2,071	.....	22,314
Cement	.....	7,051	.....	59,561
Golf balls .....*dozen*	11,982	51,639	39,832	166,135
Heels, rubber .....*pairs*	35,689	6,791	184,150	17,414
Other rubber manufactures	.....	185,092	.....	1,528,486
Totals	.....	$415,812	.....	$3,360,567
Totals, rubber imports	.....	$3,626,993	.....	$37,182,858

Exports of Domestic and Foreign Rubber Goods

UNMANUFACTURED	March, 1926 Produce of Canada Value	March, 1926 Re-exports of Foreign Goods Value	Twelve Months Ended March, 1926 Produce of Canada Value	Twelve Months Ended March, 1926 Re-exports of Foreign Goods Value
Crude and waste rubber	$46,233	.....	$435,097	.....
Totals	$46,233	.....	$435,097	.....
MANUFACTURED				
Belting	$97,273	.....	$657,121	.....
Canvas shoes with rubber soles	415,331	.....	2,747,861	.....
Boots and shoes	224,606	.....	2,115,082	.....
Clothing, including waterproofed	4,719	.....	44,228	.....
Hose	30,171	.....	235,214	.....
Tires, casings	1,998,543	.....	11,616,505	.....
Inner tubes	356,980	.....	2,103,484	.....
Solid	46,032	.....	283,712	.....
Other rubber manufactures	73,555	$7,149	488,555	$139,044
Totals	$3,247,210	$7,149	$20,291,762	$139,044
Totals, rubber exports	$3,293,443	$7,149	$20,726,859	$139,044

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of April, 1926

	Landed for April Tons	Delivered for April Tons	Stocks, April 30 1926 Tons	Stocks, April 30 1925 Tons	Stocks, April 30 1924 Tons
LONDON:					
Plantation	10,309	4,678	18,604	12,788	54,252
Other grades	12	3	119	55	107
LIVERPOOL:					
Plantation	†639	†365	†1,260	†1,075	†5,081
Pará and Peruvian	147	116	368	217	790
Other grades	....	....	2	29	210
Total tons, London and Liverpool	11,107	5,162	20,353	14,164	60,440

† Official returns from the six recognized public warehouses.

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	April, 1926		Ten Months Ended April, 1926	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	77,377,955	$48,742,539	799,533,071	$532,170,894
Balata	38,392	18,116	1,153,736	555,395
Jelutong or Pontianak	1,304,644	222,218	11,786,308	1,670,600
Gutta percha	364,135	69,962	3,190,271	610,255
Guayule	1,030,945	282,765	8,825,847	2,285,627
Rubber scrap	3,232,442	120,467	33,970,501	1,365,366
Totals	83,348,513	$49,456,067	859,075,738	$538,658,137
Chicle ...*dutiable*	1,624,733	$750,299	10,987,422	$5,402,470
MANUFACTURED—*dutiable*				
Rubber belting	58,638	$44,075	614,713	$445,247
Rubber tires	100	1,175	[1]1,291	[1]21,349
Other rubber manufactures of substitutes for rubber	.....	134,154	.....	1,225,817
Totals	58,738	$179,404	616,004	$1,692,413

Exports of Foreign Merchandise

	April, 1926		Ten Months Ended April, 1926	
RUBBER AND MANUFACTURES	Pounds	Value	Pounds	Value
Crude rubber	2,525,787	$1,605,093	31,948,716	$23,457,779
Balata	49,982	31,778	489,846	282,983
Gutta percha and rubber substitutes and scrap	190	130	46,676	12,417
Rubber manufactures	.....	492	.....	172,770
Totals	.....	$1,637,493	.....	$23,925,949

Exports of Domestic Merchandise

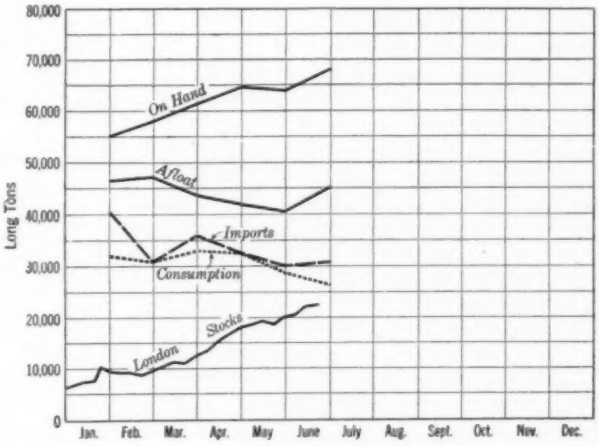
MANUFACTURED				
India rubber				
Reclaimed	1,023,174	$115,114	9,439,343	$1,143,686
Scrap and old	2,765,584	178,629	22,473,992	1,493,441
Footwear				
Boots ...*pairs*	21,832	62,299	728,049	1,721,633
Shoes ...*pairs*	76,445	68,571	1,073,379	952,242
Canvas shoes with rubber soles ...*pairs*	530,412	421,923	4,013,634	3,017,081
Rubber water bottles and fountain syringes..*number*	11,497	8,980	240,004	177,655
Rubber gloves..*dozen pairs*	8,671	27,361	[1]23,737	[1]86,205
Other druggists' rubber sundries	.....	53,840	.....	891,114
Bathing caps ...*dozen*	23,071	53,388	139,553	295,303
Hard rubber goods				
Electrical hard rubber goods	97,804	32,215	910,998	310,904
Other hard rubber goods	.....	31,832	.....	386,791
Tires				
Casings, automobile..*number*	134,843	2,450,083	1,345,841	20,587,716
Tubes, automobile..*number*	113,415	309,090	1,147,680	2,859,226
Other casings and tubes ...*number*	8,844	34,541	66,610	223,423
Solid tires				
for automobiles and motor trucks ...*number*	9,178	369,994	99,498	3,218,592
Others	84,182	30,837	1,644,750	482,860
Tire accessories	.....	141,748	.....	1,179,593
Rubber and friction tape	111,313	34,235	[1]272,400	[1]89,221
Belting	314,683	220,371	3,432,857	2,201,120
Hose	674,344	281,848	4,964,480	2,027,770
Packing	176,212	92,283	1,830,478	885,561
Soles and heels	418,343	124,549	3,231,522	1,029,823
Thread	96,974	137,327	1,504,888	1,935,794
Rubber bands and erasers	65,619	50,444	[1]192,921	[1]152,909
Other rubber manufactures	.....	204,810	.....	1,833,448
Totals	.....	$5,536,312	.....	$49,183,121
Rubber toys, balls and balloons	.....	$68,064	.....	$889,285

[1] Beginning Jan. 1, 1926.

United States Crude Rubber Imports, Consumption and Stocks

1925	Imports Tons	Consumption Tons	Stocks On Hand Tons	Stocks Afloat Tons	London Stocks Tons
Twelve months	388,000	385,000	51,000*	48,000*	.....
1926					
January	40,500	32,000	55,000	46,300	10,100
February	31,000	31,000	58,000	47,000	9,100
March	36,000	33,000	61,500	43,500	12,800
April	32,700	32,500	64,400	41,900	18,500
May	30,000	29,000	64,000	40,300	20,200
June (Estimated)	30,500	26,500	68,000	45,000	22,660†

*December 31, 1925.
†June 19, 1925.



Graph of U. S. Crude Rubber Imports, Consumption and Stocks

Imports of Crude Rubber Into the United States by Customs Districts

	*April, 1926		Four Months Ended *April, 1926	
	Pounds	Value	Pounds	Value
Massachusetts	1,918,344	$1,129,090	14,881,400	$11,348,377
Buffalo	.....	.....	30,000	12,600
New York	71,151,009	44,479,248	314,481,123	230,702,018
Philadelphia	8,856	3,225	8,856	3,225
Maryland	1,452,789	1,192,626	1,452,789	1,192,626
New Orleans	.....	.....	1,233	642
Los Angeles	2,197,055	1,390,312	7,559,076	5,740,083
San Francisco	129,536	87,157	524,255	401,324
Colorado	380,800	370,102	548,800	515,738
Oregon	45,180	34,186	101,180	85,828
Washington	.....	.....	716,800	541,688
Michigan	27,161	13,645	30,082	15,544
Ohio	67,225	42,948	67,225	42,948
Totals	77,377,955	$48,742,539	340,402,819	$250,602,641

* Including Latex Dry Rubber Content.

United States Crude and Waste Rubber Imports for 1926 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Maniçobas and Matto Grosso	Total 1926	Total 1925	Balata	Miscellaneous	Waste
January ...*tons*	36,372	856	791	515	153	10	38,697	29,960	94	607	1,227
February	31,832	1,548	327	250	204	6	34,067	23,456	19	728	729
March	40,177	1,426	334	256	482	2	42,677	33,914	30	1,264	324
April	30,766	854	164	392	494	8	32,678	27,231	35	864	216
May	27,915	1,431	199	449	417	..	30,411	36,889	52	932	173
Totals, 5 months, 1926.*tons*	167,062	6,115	1,715	1,862	1,750	26	178,530	.....	230	4,395	2,669
Totals, 5 months, 1925	140,877	7,099	1,351	864	1,229	30	.....	151,450	163	5,195	1,058

Compiled from statistics supplied by the Rubber Association of America, Inc.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
MAY 24. By "Cuthbert," Manaos.					
H. A. Astlett & Co., Inc.	88	3	...	...	...
Paul Bertuch & Co., Inc.	24	28	201	158	...
General Rubber Co.	645	1	135	69	...
Poel & Kelly, Inc.	125	...	...	...	...
JUNE 2. By "Bonheur," Para.					
H. A. Astlett & Co., Inc.	73	...	...	...	...
General Rubber Co.	122	17	52	125	...
JUNE 7. By "Alban," Manaos.					
H. A. Astlett & Co., Inc.	8	...	83	12	...
Paul Bertuch & Co., Inc.	62	...	9	148	...
General Rubber Co.	243	4	178	830	..
Poel & Kelly, Inc.	94	...	120	1,051	...

Plantations

	Cases
MAY 14. By "Knight Companion," Far East.	
H. A. Astlett & Co., Inc.	2,496
Baird Rubber & Trading Co., Inc.	587
General Rubber Co.	1,993
Haldane Bierrie & Co., Inc.	40
Meyer & Brown, Inc.	2,240
Poel & Kelly, Inc.	5,425
Raw Products Co.	231
Charles T. Wilson Co., Inc.	464
MAY 15. By "Nieuw Amsterdam," Europe.	
Charles T. Wilson Co., Inc.	209
MAY 16. By "Nevision," Far East.	
Hood Rubber Co.	*376
L. Littlejohn & Co., Inc.	271
Poel & Kelly, Inc.	403
MAY 17. By "Comeric," Far East.	
H. A. Astlett & Co., Inc.	254
Baird Rubber & Trading Co., Inc.	1,164
General Rubber Co.	1,213
Hood Rubber Co.	*96
L. Littlejohn & Co., Inc.	1,734
Meyer & Brown, Inc.	1,996
H. Muehlstein & Co., Inc.	510
Poel & Kelly, Inc.	1,708
Raw Products Co.	430
Charles T. Wilson Co., Inc.	bales 180
MAY 18. By "Eastern Prince," Far East.	
H. A. Astlett & Co., Inc.	853
Baird Rubber & Trading Co., Inc.	2,794
General Rubber Co.	5,007
Haldane Bierrie & Co., Inc.	150
Hood Rubber Co.	*1,040
L. Littlejohn & Co., Inc.	4,459
Meyer & Brown, Inc.	*325
Meyer & Brown, Inc.	2,741
H. Muehlstein & Co., Inc.	1,792
Poel & Kelly, Inc.	5,428
Raw Products Co.	438
Charles T. Wilson Co., Inc.	2,577
MAY 19. By "Ethan Allen," Far East.	
H. A. Astlett & Co., Inc.	34
General Rubber Co.	3,598
L. Littlejohn & Co., Inc.	58
Meyer & Brown, Inc.	32
Poel & Kelly, Inc.	230
Charles T. Wilson Co., Inc.	131
MAY 19. By "Media," Far East.	
Baird Rubber & Trading Co., Inc.	330
General Rubber Co.	40
L. Littlejohn & Co., Inc.	400
Meyer & Brown, Inc.	1,115
H. Muehlstein & Co., Inc.	160
Poel & Kelly, Inc.	556
Raw Products Co.	730
MAY 19. By "Steel Seafarer," Far East.	
H. A. Astlett & Co., Inc.	1,317
Baird Rubber & Trading Co., Inc.	747
General Rubber Co.	5,957
Adolph Hirsch & Co., Inc.	147
L. Littlejohn & Co., Inc.	938
Meyer & Brown, Inc.	1,025
H. Muehlstein & Co., Inc.	340
Poel & Kelly, Inc.	1,164
Raw Products Co.	50
Charles T. Wilson Co., Inc.	749
MAY 20. By "Idaho," Europe.	
H. A. Astlett & Co., Inc.	439
MAY 20. By "Pres. Harrison," Far East.	
H. A. Astlett & Co., Inc.	360
Baird Rubber & Trading Co., Inc.	610
Paul Bertuch & Co., Inc.	115
General Rubber Co.	3,181
General Rubber Co.	*250
Haldane Bierrie & Co., Inc.	450
Hood Rubber Co.	*180
L. Littlejohn & Co., Inc.	1,882
Meyer & Brown, Inc.	871
H. Muehlstein & Co., Inc.	674
Poel & Kelly, Inc.	*264
Poel & Kelly, Inc.	273
Raw Products Co.	150
Charles T. Wilson Co., Inc.	228
MAY 22. By "Jason," Far East.	
H. A. Astlett & Co., Inc.	1,736
Baird Rubber & Trading Co., Inc.	1,364
General Rubber Co.	3,701
Haldane Bierrie & Co., Inc.	50
Adolph Hirsch & Co., Inc.	150
Meyer & Brown, Inc.	3,734
H. Muehlstein & Co., Inc.	365
Poel & Kelly, Inc.	5,627
Charles T. Wilson Co., Inc.	252
MAY 22. By "Ryndam," Far East.	
General Rubber Co.	2,006
Meyer & Brown, Inc.	50
H. Muehlstein & Co., Inc.	100
Poel & Kelly, Inc.	11
MAY 24. By "Kalomo," Far East.	
H. A. Astlett & Co., Inc.	48
General Rubber Co.	80
L. Littlejohn & Co., Inc.	121
Meyer & Brown, Inc.	208
Poel & Kelly, Inc.	104
Charles T. Wilson Co., Inc.	28
MAY 24. By "Pres. Cleveland," Far East.	
Poel & Kelly, Inc.	†410
MAY 24. By "Saarland," Far East.	
Poel & Kelly, Inc.	†280
MAY 25. By "Pres. Pierce," Far East.	
Baird Rubber & Trading Co., Inc.	†250
MAY 30. By "Rotterdam," Far East.	
General Rubber Co.	†650
Poel & Kelly, Inc.	45
MAY 31. By "Carenthia," London.	
Charles T. Wilson Co., Inc.	287
MAY 31. By "Minnetonka," London.	
H. A. Astlett & Co., Inc.	363
Baird Rubber & Trading Co., Inc.	214
General Rubber Co.	2,468
L. Littlejohn & Co., Inc.	360
Poel & Kelly, Inc.	20
Rogers Brown & Crocker Bros., Inc.	53
Charles T. Wilson Co., Inc.	630
JUNE 1. By "Kendal Castle," Far East.	
H. A. Astlett & Co., Inc.	1,250
Baird Rubber & Trading Co., Inc.	1,559
General Rubber Co.	6,766
Haldane Bierrie & Co., Inc.	300
Hood Rubber Co.	*284
L. Littlejohn & Co., Inc.	1,446
Meyer & Brown, Inc.	2,030
H. Muehlstein & Co., Inc.	583
Poel & Kelly, Inc.	*3,054
Raw Products Co.	630
Charles T. Wilson Co., Inc.	670
JUNE 2. By "Clydebank," Far East.	
H. A. Astlett & Co., Inc.	252
Baird Rubber & Trading Co., Inc.	53
General Rubber Co.	70
L. Littlejohn & Co., Inc.	123
Meyer & Brown, Inc.	65
H. Muehlstein & Co., Inc.	125
Poel & Kelly, Inc.	131
Raw Products Co.	334
Charles T. Wilson Co., Inc.	433
JUNE 3. By "Pres Van Buren," Far East.	
H. A. Astlett & Co., Inc.	310
Baird Rubber & Trading Co., Inc.	1,460
Paul Bertuch & Co., Inc.	25
General Rubber Co.	1,322
Haldane Bierrie & Co., Inc.	50
Hood Rubber Co.	*170
L. Littlejohn & Co., Inc.	1,597
Meyer & Brown, Inc.	*358
Meyer & Brown, Inc.	1,985
H. Muehlstein & Co., Inc.	441
Poel & Kelly, Inc.	*1,748
Poel & Kelly, Inc.	711
Raw Products Co.	144
Rogers Brown & Crocker Bros., Inc.	25
Charles T. Wilson Co., Inc.	704
JUNE 4. By "Rhine Maru," Far East.	
H. A. Astlett & Co., Inc.	407
General Rubber Co.	2,344
L. Littlejohn & Co., Inc.	1,068
Meyer & Brown, Inc.	1,137
H. Muehlstein & Co., Inc.	169
Poel & Kelly, Inc.	212
Raw Products Co.	140
Rogers Brown & Crocker Bros., Inc.	60
JUNE 5. By "Vendam," Far East.	
L. Littlejohn & Co., Inc.	85
H. Muehlstein & Co., Inc.	61
JUNE 6. By "City of Rangoon," Far East.	
H. A. Astlett & Co., Inc.	1,335
Baird Rubber & Trading Co., Inc.	1,806
General Rubber Co.	3,546
Haldane Bierrie & Co., Inc.	300
L. Littlejohn & Co., Inc.	1,408
Meyer & Brown, Inc.	*50
Meyer & Brown, Inc.	2,511
H. Muehlstein & Co., Inc.	101
Poel & Kelly, Inc.	*900
Poel & Kelly, Inc.	789
Raw Products Co.	303
Charles T. Wilson Co., Inc.	409
JUNE 6. By "Sitoebondo," Far East.	
H. A. Astlett & Co., Inc.	546
Baird Rubber & Trading Co., Inc.	157
Bowring & Co.	30
General Rubber Co.	4,318
L. Littlejohn & Co., Inc.	1,766
Meyer & Brown, Inc.	861
H. Muehlstein & Co., Inc.	180
Poel & Kelly, Inc.	1,202
Raw Products Co.	125
Charles T. Wilson Co., Inc.	68
JUNE 7. By "American Shipper," Far East.	
General Rubber Co.	766
L. Littlejohn & Co., Inc.	243
Meyer & Brown, Inc.	84
Poel & Kelly, Inc.	536
JUNE 7. By "Carmania," London.	
H. A. Astlett & Co., Inc.	134
General Rubber Co.	4,118
L. Littlejohn & Co., Inc.	352
Poel & Kelly, Inc.	861
Charles T. Wilson Co., Inc.	77
JUNE 9. By "Calchas," Far East.	
H. A. Astlett & Co., Inc.	3,017
Baird Rubber & Trading Co., Inc.	1,970
General Rubber Co.	4,912
Haldane Bierrie & Co., Inc.	1,175
Hood Rubber Co.	*86
L. Littlejohn & Co., Inc.	3,304
Meyer & Brown, Inc.	2,852
H. Muehlstein & Co., Inc.	260
Poel & Kelly, Inc.	*2,012
Poel & Kelly, Inc.	1,868
Raw Products Co.	730
Rogers Brown & Crocker Bros., Inc.	106
Charles T. Wilson Co., Inc.	627
JUNE 9. By "Ottar," Far East.	
Baird Rubber & Trading Co., Inc.	36
JUNE 9. By "Panuco," Mexico.	
Baird Rubber & Trading Co., Inc.	560
JUNE 10. By "Reliance," Europe.	
H. A. Astlett & Co., Inc.	96
JUNE 10. By "Rousillon," Europe.	
H. A. Astlett & Co., Inc.	508

JUNE 11. By "Maimyo," Far East. CASES
Baird Rubber & Trading Co., Inc. 132
General Rubber Co. 2,399
Hood Rubber Co. *105
L. Littlejohn & Co., Inc. 320
Meyer & Brown, Inc. 995
H. Muehlstein & Co., Inc. 1,422
Poel & Kelly, Inc. 660
Raw Products Co. 240
Charles T. Wilson Co., Inc. 234
JUNE 13. By "Volendam," Rotterdam.
L. Littlejohn & Co., Inc. 63
JUNE 14. By "Cedric," Europe.
Meyer & Brown, Inc. 50
JUNE 14. By "Minnewaska," London.
H. A. Astlett & Co., Inc. 161
General Rubber Co. 1,615
L. Littlejohn & Co., Inc. 507
JUNE 14. By "Scythian," Europe.
H. A. Astlett & Co., Inc. 20
L. Littlejohn & Co., Inc. 405
General Rubber Co. 50
Meyer & Brown, Inc. 111

* Arrived at Boston.
† Arrived at Los Angeles.
§ Arrived at Laredo, Texas.

Rubber Latex

MAY 18. By "Steel Seafarer," Far East. GALLONS
General Rubber Co. 65,802
JUNE 6. By "City of Ragoon," Far East.
General Rubber Co. 208,372

Africans

MAY 31. By "Carinthia," London. CASES
L. Littlejohn & Co., Inc. 245
JUNE 3. By "Sarcoxie," Far East.
L. Littlejohn & Co., Inc. 1,129
JUNE 11. By "Skaaneland," France.
Poel & Kelly, Inc. 5

Balata

MAY 24. By "Cuthbert," Manaos.
Paul Bertuch & Co., Inc. 64

Centrals

JUNE 9. By "Ottar," Far East.
Baird Rubber & Trading Co., Inc. ....tons 2

Guayule

MAY 23. By "Mexico," Mexico. CASES
L. Littlejohn & Co., Inc. 8
MAY 24. By "Canto," Mexico.
Continental Rubber Co. of New York 1,060
MAY 29. By "Agwistar," Mexico.
Continental Rubber Co. of New York 1,120
JUNE 2. By "Railway," Mexico.
Continental Rubber Co. of New York §608
JUNE 9. By "Panuco," Mexico.
Baird Rubber & Trading Co., Inc. ....tons 25
Continental Rubber Co. of New York 2,212
JUNE 18. By "Stal," Mexico.
Continental Rubber Co. of New York 1,620
JUNE 25. By "Camaguey," Mexico.
Continental Rubber Co. of New York 2,180
JUNE 28. By "Canto," Mexico.
Continental Rubber Co. of New York 1,620

Gutta Percha

JUNE 9. By "Calchas," Far East. CASES
Poel & Kelly, Inc. 18

Handling Mixed Stock for Mass Production

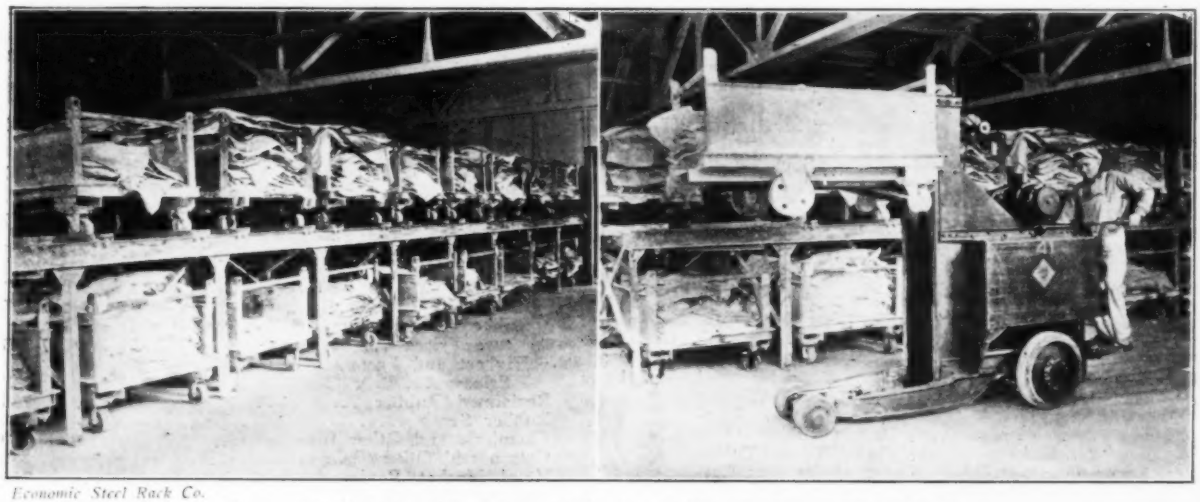
The efficiency of the small plant as compared with the large one is a question often debated by rubber men with many well defined arguments presented by both sides. On this subject the experience of a veteran mill and calender room man is of interest. He supervised that department in a small factory for a good many years and had at his command the latest equipment in machinery, an experienced personnel and a good layout.

One day he took an afternoon off and visited the calender department of a mill five times the size of his own to compare notes. His first impression did not compare unfavorably with his own department; machinery, layout, and personnel seemed to be operating on about the same efficiency ratio.

But as he stopped beside a mill and calender unit just as the second shift was coming on, he had a revelation. Stepping aside at the tinkle of a bell from an electric truck, he observed that it stopped at the unit he was inspecting with a load of mixed stock on a specially designed trailer truck, containing 4,000 pounds of mixed stock,—4,000 pounds an hour's supply! Then his mind traveled back to his own department where two men struggled along with a hand lift truck carrying perhaps 400 pounds of mixed stock on a skid. He visualized also the crew of men he had pulling the stock from the racks to be loaded on that skid.

Walking along a little further to the stock storage space he noticed a neat compact layout of racks with the same type of trailer truck stacked two high. No rehandling of stock from the mixers. No stock room force. Two electric trucks were supplying the whole department with stock in 4,000 pound units. And he concluded that in this one instance the big mill was beating his efficiency by more than 10 to 1!

The accompanying photographs show the economic method of handling and storing mixed stock in operation. Its advantages include saving of floor space, elimination of all rehandling, and reduction of overhead and non-productive labor. The rubber is taken from the mixing mill after cooling, placed in the trucks, and then taken to the rack for permanent storage and aging. From there the trucks are picked up by electric trucks and taken to the crackers, mills, and calenders with an approximate capacity of 4,000 pounds per skid.



Economic Steel Rack Co.

"Economic" Method of Handling and Storing Rubber Stocks on Live Platforms

EXPORTS OF PRODUCE FROM BRITISH GUIANA ARE RECORDED AS including for the calendar year 1925 10,752 pounds of crude rubber as compared with only 3,955 pounds for the year previous. Exports of balata have however declined, the figure for 1924 being 1,370,212 pounds against 904,784 pounds for 1925.

INDIA RUBBER WORLD
FOUNDED 1889
CAOUTCHOUC
GUTTA-PERCHA
Reg U.S. Pat. Off.
Reg United Kingdom.

Vol. 74 July 1, 1926 No. 4

TABLE OF CONTENTS

Our Publicity Page

Successful Sales Promotion

EVERY business house has an important story to tell its patrons and prospective buyers concerning its goods and services which it is essential to present convincingly before the right men in definite branches of trade and industry. The two common ways to accomplish this purpose are by sending out salesmen or by advertising in suitable papers or magazines.

Advertising a Unique Sales Force

The salesman who can gain audience with the right man must have at command thorough acquaintance with the trade, combined with personality, knowledge, integrity and perseverance. As an adjusting medium a magazine or paper is required that will produce the same results as the salesman by reason of its prestige based on years of service to its clientele.

In this respect no other paper in the world devoted to the rubber and allied trades surpasses *The India Rubber World*. It is unique among the rubber trade press. It is the silent salesman of the rubber industry, known and read by executives and rubber workers throughout the world for nearly two-score years.

During that long period it has retained the attention, respect and confidence of the entire industry and is acknowledged as the unique sales force of premier standing in the rubber trade press.

In everything pertaining to the rubber industry, from the raw materials, machinery and mill supplies to the manufactured rubber goods themselves, *The India Rubber World* is absolutely indispensable in sales promotion. It both presents the actual markets and brings the goods before a host of potential purchasers. Every advertisement shares in the attention of every reader, besides drawing that of those especially seeking its message.

Enters Where Salesmen Cannot

Month by month through the year *The India Rubber World* finds a hearty welcome at the desks of all the important rubber executives, however difficult of personal approach they may be. This is equally true whether the men to be reached are high executives, superintendents, production and technical managers, chemists, engineers, purchasing agents or sales managers, and every alert man among them sees it regularly. The subscription list of *The India Rubber World* has always been a veritable "Who's Who," and a directory of the rubber trade. Practically every firm and man of consequence has his place on that list constantly.

Executives Read It

Busy executives with little time for reading usually concentrate upon a single rubber trade paper which is interesting, progressive, comprehensive, authoritative and the leader in its field. That paper has always been *The India Rubber World*. Its advertising pages are as complete and valuable as its text and are read as such. In its every department the paper has all the characteristics of the efficient salesman.

Why Advertise in The India Rubber World?

Advertising in *The India Rubber World* reaches the right man in the right way. It comes to him through a medium with which he is favorably acquainted, whose distinctive editorials, articles, news features and departments assure for it the same sort of welcome as the pleasing personality of a master salesman. It greets him through a medium whose expert authority in all matters pertaining to rubber wins his confidence as would a salesman well equipped with a full knowledge of the product offered. A medium whose reliability and impartiality permit of no questionable advertising and so commands his respect as would a salesman of high integrity. Its monthly appearance, reiterating sales messages with new arguments and cumulative effect, has the persuasive force of a super-salesman. Thus advertising in *The India Rubber World* gains an audience with the right man, wins his confidence and takes his order.

Constant Advertisers

All this makes evident why advertisers in *The India Rubber World* are constant, not occasional, space buyers, and why renewals for advertising are as nearly 100 per cent as for subscriptions. While they realize that advertising cannot displace the salesman who can render personal service as well as tell a sales story, they appreciate certain important advantages of the printed word. They know it penetrates easily where salesmen often find it difficult to go; that it never intrudes upon a busy man's activities, but is sought out by him in leisure hours and receptive mood; that it introduces the product and creates a welcome for the salesman later on; that it is the primary adjunct of successful sales promotion.

1, 1926

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